UNIVERSITY
AT ALBANY
State University of New York

Office of the Provost & Vice President for Academic Affairs

April 28, 2014

Elizabeth L. Bringsjord
Interim Provost and Vice Chancellor
State University of New York
System Administration
State University Plaza
Albany, NY 12246

Dear Dr. Bringsjord,

On behalf of the faculty at the University at Albany, I am pleased to submit for establishment and registration the attached New Undergraduate Degree Program Proposal for a BS in Informatics.

This proposal has been fully considered and approved through our campus governance system and has completed the required external program review. Should there be a need for additional information or clarification to facilitate processing, please contact Suzanne Freed, Assistant Vice Provost for Undergraduate Education at sfreed@albany.edu.

Thank you for your consideration and assistance.

Sincerely,

Susan D. Phillips, Ph.D.
Provost and Vice President for Academic Affairs

Enclosure

c. Dr. Jeanette Altarriba, Vice Provost and Dean for Undergraduate Education
Dr. Sue Faerman, Interim Dean, College of Computing and Informatics
Dr. George Berg, Chair, Department of Informatics
Dr. Jennifer Goodall, Director, Informatics Undergraduate Program
Ms. Suzanne Freed, Asst Vice Provost for Undergraduate Education

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New Program Proposal: Undergraduate Degree Program

Form 2A

This form should be used to seek SUNY's approval and the State Education Department's (SED) registration of a proposed new academic program leading to an associate's and/or bachelor's degree. Approval and registration are both required before a proposed program can be promoted or advertised, or can enroll students. The campus Chief Executive or Chief Academic Officer should send a signed cover letter and this completed form (unless a different form applies[1]), which should include appended items that may be required for Sections 1 through 6, 9 and 10 and MPA-1 of this form, to the SUNY Provost at program.review@suny.edu. The completed form and appended items should be sent as a single, continuously paginated document.[2] If Sections 7 and 8 of this form apply, External Evaluation Reports and a single Institutional Response should also be sent, but in a separate electronic document. Guidance on academic program planning is available at http://www.suny.edu/provost/academic_affairs/app/main.cfm.

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[1]Use a different form if the proposed new program will lead to a graduate degree or any credit-bearing certificate; be a combination of existing registered programs (i.e. for a multi-award or multi-institution program); be a breakout of a registered track or option in an existing registered program; or lead to certification as a classroom teacher, school or district leader, or pupil personnel services professional (e.g., school counselor).

[2]This email address limits attachments to 25 MB. If a file with the proposal and appended materials exceeds that limit, it should be emailed in parts.

Section 1. General Information		
Item	**Response** ***(type in the requested information)***	
a) Institutional Information	Date of Proposal:	April 28, 2014
	Institution's 6-digit SED Code:	**210500**
	Institution's Name:	University at Albany, State University of New York
	Address:	1400 Washington Avenue Albany, NY 12222
	Dept of Labor/Regent's Region:	Capital Region
b) Program Locations	List each campus where the entire program will be offered (with each institutional or branch campus 6-digit SED Code): 210500	
	List the name and address of off-campus locations (i.e., extension sites or extension centers) where courses will offered, **or check here [ ] if not applicable**:	
c) Proposed Program Information	Program Title:	Informatics
	Award(s) (e.g., A.A., B.S.):	B.S.
	Number of Required Credits:	Minimum [120] If tracks or options, largest minimum [120]
	Proposed HEGIS Code:	0799
	Proposed 6-digit CIP 2010 Code:	11.0104
	If the program will be accredited, list the accrediting agency and expected date of accreditation:	
	If applicable, list the SED professional licensure title(s)[1] to which the program leads:	
d) Contact Person for This Proposal	Name and title: Suzanne K Freed Assistant Vice Provost for Undergraduate Education Telephone: 518-242-6046 E-mail: sfreed@albany.edu	
e) Chief Executive or Chief Academic Officer Approval	**Signature affirms that the proposal has met all applicable campus administrative and shared governance procedures for consultation, and the institution's commitment to support the proposed program.** ***E-signatures are acceptable.*** Name and title: Dr Susan D Phillips Provost and Vice President for Academic Affairs Signature and date: Susan D Phillips 4/28/14	
	If the program will be registered jointly[2] with one or more other institutions, provide the following information for each institution:	
	Partner institution's name and 6-digit SED Code: Name and title of partner institution's CEO: Signature of partner institution's CEO (or **append** a signed letter indicating approval of this proposal):	

Version 2013-10-15

[1] If the proposed program leads to a professional license, a specialized form for the specific profession may need to accompany this proposal.

[2] If the partner institution is non-degree-granting, see SED's CEO Memo 94-04.

Section 2. Program Information

2.1. Program Format

Check all SED-defined format, mode and other program features that apply to the **entire program**.

a) Format(s): [ ]Day [ ]Evening [ ]Weekend [ ]Evening/Weekend [ ]Not Full-Time

b) Modes: [x]Standard [ ]Independent Study [ ]External [ ]Accelerated [x]Distance Education
NOTE: *If the program is designed to enable students to complete 50% or more of the course requirements through distance education, check Distance Education, see Section 10, and append a Distance Education Format Proposal.*

c) Other: [ ] Bilingual [ ] Language Other Than English [ ] Upper Division [ ] Cooperative [ ] 4.5 year [ ] 5 year

2.2. Diploma Program

NOTE: *This section is not applicable to a program leading to an associate's or a bachelor's degree.*

2.3 Program Description, Purposes and Planning

a) What is the description of the program as it will appear in the institution's catalog?

The B.S in Informatics is a unique opportunity for students to study the application of technology across disciplines. The degree is a combined major and minor, requiring a total of 54 credits. This includes 42 credits of required core courses that focus on the relationship between technology and society, the use of various technologies across platforms, and programming fundamentals. Emphasis is also placed on providing students with various opportunities to gain real-world experience. In addition, students are required to complete 12 credits in a specialization called a concentration. This gives students the opportunity to deepen their experience and knowledge in a particular area of Informatics. The tracks are Interactive User Experience, Cyber-security, Computer Networking, Social Media, Data Analytics, Software Development, and Information Technology. The Information Technology track will be offered fully online.

b) **What are the program's educational and, if appropriate, career objectives, and the program's primary student learning outcomes (SLOs)?** ***NOTE: SLOs are defined by the Middle States Commission on Higher Education in the Characteristics of Excellence in Higher Education as "clearly articulated written statements, expressed in observable terms, of key learning outcomes: the knowledge, skills and competencies that students are expected to exhibit upon completion of the program."***

Student Learning Outcomes relevant to the Core coursework include:

SLO1: Examine and evaluate the relationship between technology and society.
SLO2: Demonstrate a range of practical applications of technology.
SLO 3: Apply skills learned in the classrooms to real-world situations.
SLO 4: Demonstrate a mastery of specialization field.
SLO 5: Understand and apply research principles.

See Appendix 2 for detailed learning objectives for each concentration.

c) How does the program relate to the institution's and SUNY's mission and strategic goals and priorities? What is the program's importance to the institution, and its relationship to existing and/or projected programs and its expected impact on them? As applicable, how does the program reflect diversity and/or international perspectives?

The BS in Informatics is offered within the context of a liberal arts degree. Students will complete a broad-based academic degree with the in-depth training and educational experiences necessary to prepare them for specific technology-focused careers. The liberal arts foundation of this degree will ensure that graduates develop lifelong learning strategies, so critical in the field of technology. This program mixes traditional courses with experiential learning opportunities, and works with students to create a professional portfolio throughout their educational career to highlight specific skills and opportunities that have shaped their unique experience. The technology field is a rapidly evolving one. To best meet the needs of students as the field changes, the program is designed to offer specialized concentrations. These concentrations can be modified and new ones can be added as needs arise.

The BS in Informatics supports the University's mission (Expanding knowledge and transforming minds to shape the future of our community and our world) as well as the following objectives from our Strategic Plan:

1. Blend academic and co-curricular experiences for students.
2. Enhance the quality of undergrad education and help to attract and serve a highly qualified and diverse group of students.
3. Connection with public and private industry leaders to support the goal of engaging diverse communities in strategic partnerships to increase public, scholarly and economic benefits.

d) How were faculty involved in the program's design, and describe input by external partners, if any (e.g., employers and institutions offering further education?

The Department of Informatics met and surveyed both students and Capital Region industry leaders in relevant technology fields to gather input about skills and knowledge areas deemed most critical. Using that information, the department faculty created the current concentration list.

e) How did input, if any, from external partners (e.g., educational institutions and employers) or standards influence the program's design? If the program is designed to meet specialized accreditation or other external standards, such as the educational requirements in Commissioner's Regulations for the profession**, append a side-by-side chart to show how the program's components meet those external standards. If SED's Office of the Professions requires a** specialized form **for the profession to which the proposed program leads, append a completed form at the end of this document.**

In addition to assisting the faculty in designing the specific concentrations to offer, the industry leaders coalesced around the following themes, and the program was adjusted accordingly:

1. Communication, teamwork and project management skills are critical. (Project Management course added as a requirement)
2. Avoid centering the curriculum around specific tools. (Agreed)
3. Use the concentration structure to adapt quickly to changing trends. (Agreed)
4. Continue to encourage the connections with other disciplines. (Agreed)
5. Identification of the value in students from different concentrations working as a team in a capstone course. (Will be one option in the experiential learning requirement.)

f) Enter anticipated enrollments for Years 1 through 5 in the table below. How were they determined, and what assumptions were used? What contingencies exist if anticipated enrollments are not achieved?

Year	Anticipated Headcount Enrollment			Estimated FTE
	Full-time	Part-time	Total	
1	258			258
2	259			259
3	280			280
4	310			310
5	350			350

There are currently 239 students enrolled in our Bachelor of Arts in Interdisciplinary Studies with a concentration in Information Science. Projected enrollments in the proposed major start with that demand and add to it based on a trend of increased enrollments in Information Science classes, plus the option to complete the degree online.

g) Outline all curricular requirements for the proposed program, including prerequisite, core, specialization (track, concentration), internship, capstone, and any other relevant component requirements, but do not list each General Education course.

Informatics is a combined major/minor, consisting of a minimum of 42 core credits and selection of a 12-credit concentration (54 credit total).

Core courses (42 credits)

Information & Society (9 credits)

I INF 100X Information in the 21st Century
I INF 301 Emerging Trends in Information and Technology
I INF 499 Senior Seminar in Informatics

Practical Applications (15 credits)

I INF 201 Introduction to Web Technologies
I INF 202 Introduction to Data & Databases
I INF 203 Introduction to Networks and Systems
I INF 305 Digital Project Management
I CSI 105 Computing & Information (or substitute I CSI 201 Introduction to Computer Science)

Math (3 credits)

Any A MAT course between 100-299 (except A MAT 108 Elementary Statistics)

Research (6 credits)

I INF 200 Research Methods for Informatics (or substitute A SOC 220 Introduction to Social Research)
A MAT 108 Elementary Statistics (or substitute A SOC 221 Statistics for Sociologists)

Experiential Learning (9 credits)

Students will be advised into experiences that complement the chosen concentration. Classes may be repeated twice for a total of 6 credits. Students must do at least two different courses. Online IT students only may complete INF 469 (9 credits) to fulfill this requirement.

I INF 465 Senior Capstone Project
I INF 466 Undergraduate Research
I INF 467 Technology-based Community Support
I INF 468 Undergraduate Internship
I INF 469 Undergraduate Internship for Online IT Students
E APS 487 Peer Mentoring

Concentrations (at least 12 credits)

Students select one concentration.

Interactive User Experience

I INF 302 Human-Computer Interactive Design
I INF 362 Intermediate Interactive Design
And select two from:
I INF 308 Programming for Informatics
I INF 363 Digital Design
I INF 401 Case Studies in Digital Citizenship

I INF 462 Current Technologies in Web Design
I INF 496 Special Topics (as appropriate, repeatable)
I CSI 107 Web Programming
I CSI 124X Computer Security Basics
A DOC 324 Introduction to Documentary Photography
A DOC 330 Foundations of Documentary Web/Hypermedia Production
A DOC 406 Practicum in Historical Documentary Filmmaking
A DOC 407 Readings and Practicum in Digital History and Hypermedia

Cyber-security

I CSI 124X Computer Security Basics
I INF 306 Information Security & Assurance
And select two from:
I INF 401 Case Studies in Digital Citizenship
I INF 452 Computer and Network Security
I INF 453 Information Security and Privacy
I INF 454 Human Aspects of Cyber-security
I INF 455 Prevention and Protection Strategies in Cyber-security
I INF 496 Special Topics (as appropriate, repeatable)
I CSI 300Z Social, Security and Privacy Implications of Computing
I CSI 424 Information Security
I CSI 426 Cryptography

Computer Networking

I INF 303 Intermediate Networking (currently I INF 423)
I INF 304 Intermediate Hardware and Operating Systems (currently INF I 424)
And select two from:
I INF 306 Information Security & Assurance I
INF 403 Advanced Networking and Security
I INF 404 Advanced Systems and Security
I INF 452 Computer and Network Security
I INF 470 Physical Computing
I INF 496 Special Topics (as appropriate, repeatable)

Social Media

I INF 307 Current Topics in Social Media
I CSI 131 Introduction to Data Analytics: Seeking Information in Data with Computation
And select two from:
I INF 308 Programming for Informatics
I INF 363 Digital Design
I INF 401 Case Studies in Digital Citizenship
I INF 496 Special Topics (as appropriate, repeatable)
I CSI 432 Network Science
A SOC 210 Sociology of Culture
A SOC 255 Mass Media
A SOC 270 Social and Demographic Change
A DOC 224 Nonfiction Media Storytelling

Data Analytics

I CSI 131 Introduction to Data Analytics: Seeking Information in Data with Computation
I INF 300 Probability and Statistics for Data Analytics
And select two from:
I INF 407 Modern Issues in Databases
I INF 408 Analysis, Visualization, and Prediction in Analytics
I INF 451 Bayesian Data Analysis and Signal Processing
I IST 433 Information Storage and Retrieval

I CSI 431 Data Mining
I CSI 432 Network Science
I CSI 436 Machine Learning

Software Development
I CSI 201 Introduction to Computer Science
I CSI 310 Data Structures
I CSI 418Y Software Engineering
And select one from:
I INF 455 Prevention and Protection Strategies in Cyber-security
I CSI 405 Object Oriented Programming Principles and Practice

Information Technology (online only)
I INF 302 Human-Computer Interactive Design
I INF 303 Intermediate Networking (currently I INF 423)
I INF 306 Information Security & Assurance
I INF 308 Programming for Informatics

Self-Designed (with Departmental Approval only)
Student must provide a proposal of courses to take to support the proposed self-designed concentration that includes at least four (4) courses. At least 9 credits of a self-designed concentration should be taken while enrolled in the INF BS program. Proposal must be approved by INF faculty before the student can declare it.

h) Program Impact on SUNY and New York State

h)(1) ***Need:*** **What is the need for the proposed program in terms of the clientele it will serve and the educational and/or economic needs of the area and New York State? How was need determined? Why are similar programs, if any, not meeting the need?**

National Job Projections

Department of Labor statistics indicate that job growth in computing careers is expected to be 22-31%, faster-to-much-faster than the average growth rate for all occupations (14%) and that the positions will require at least a bachelor's degree. Specifically, between 2010 and 2020, it is expected that opportunities for:

• web developers will increase by 22%
• information security analysts will increase by 22%
• computer network architects will increase by 22%
• computer and information research scientists will increase by 19%
• software developers will increase by 30%
*computer and information systems managers and computer support specialists will each increase by 18%
*computer systems analysts will increase by 22%
• mobile application developer, mobile technology expert, mobile web developer, cloud architect will increase, although data has not been published addressing these specific fields because they are so new and are being defined as they emerge.

New York State Job Projections (Department of Labor)

Requiring a bachelor's degree:

	Average Annual Openings	
Occupation	**Statewide**	**Capital Region**
	2010-2020	**2008-2018**
Information Security Analysts, Web Developers, and Computer Network Architects	730	710
Network Systems and Data Communications Analysts	N/A	100
Network and Computer Systems Administrators	770	30
Computer and Information Systems Managers	720	20
Computer Programmers	890	80
Computer Systems Analysts	1130	60
Software Developers/Engineers	1710	50
Database Administrators	280	10

• New York City has the highest volume of social media jobs in the country.
• Indeed.com searches millions of jobs from thousands of job sites and finds that "Social Media" is in the top 10 job trends.

Currently, no other SUNY institutions offer an undergraduate degree in *Informatics*, which is aimed at educating students in the broad application of computation as well as providing in-depth study in a specific concentration.. However, Informatics as a field, as well as the concentration-model, is growing nationally. In NYS, Cornell also uses a concentration-based model, offering what they call tracks. For example, they have tracks in: Human-centered systems (which corresponds to Interactive User Experience) and Information Systems (which corresponds to Information Technology).

h)(2) ***Employment:*** For programs designed to prepare graduates for immediate employment, use the table below to list potential employers of graduates that have requested establishment of the program and state their specific number of positions needed. If letters from employers support the program, they may be **appended** at the end of this form.

Employer	*Need: Projected positions*	
	In initial year	**In fifth year**
Potratz Partners Advertising (Web Development)	5	5-7
Troy Web Consulting	2	3-5
Rational Enterprise	6-12	
Kitware	4	20
Rational Retention	5	25

h)(3) ***Similar Programs:*** Use the table below to list similar programs at other institutions, public and independent, in the service area, region and state, as appropriate. Expand the table as needed. ***NOTE:*** *Detailed program-level information for SUNY institutions is available in the Academic Program Enterprise System (APES) or Academic Program Dashboards. Institutional research and information security officers at your campus should be able to help provide access to these password-protected sites. For non-SUNY programs, program titles and degree information – but no enrollment data – is available from SED's Inventory of Registered Programs.*

Institution	Program Title	Degree	Enrollment
Cornell University	Information Science	BA, BS	128
University at Washington	Informatics	BS	250

Indiana University	Informatics	BS	1449

h)(4) **C*ollaboration:* Did this program's design benefit from consultation with other SUNY campuses? If so, what was that consultation and its result?**

There were no comments from other SUNY campuses.

h)(5) ***Concerns or Objections:*** **If concerns and/or objections were raised by other SUNY campuses, how were they resolved?** N/A

h)(6) ***Undergraduate Transfer:*** The State University views as one of its highest priorities the facilitation of transfer for undergraduate students. To demonstrate adequate planning for transfer under SUNY's student mobility policy, **Section 9** of this form on **SUNY Undergraduate Transfer** must be completed for programs leading to Associate in Arts (A.A.) and Associate in Science (A.S.) and for baccalaureate programs anticipating transfer enrollment.

2.4. Admissions

a) What are all admission requirements for students in this program? Please note those that differ from the institution's minimum admissions requirements and explain why they differ.

This is an unrestricted major, available to any matriculated undergraduate student at UAlbany. There are no additional admission requirements for this program. Students at the University at Albany must have earned 24 credits before declaring their major.

b) What is the process for evaluating exceptions to those requirements? N/a

c) How will the institution encourage enrollment in this program by persons from groups historically underrepresented in the institution, discipline or occupation?

Many of the STEM fields (of which Informatics is a part) have low representation by women and members of under-represented minorities. The proposed Informatics BS has been motivated by and designed to be an intellectually stimulating major with significant career potential, and to be appealing to a diverse student body.

The topic of Informatics – modern digital technologies in their many forms and their relationships to society – is one that is interesting and relevant to many students. The topics encompassed (*e.g.* user interface design, cyber-security) are ones that score highly in expressed student interest surveys. Many students find these areas interesting and see in them potential careers.

Part of the dissatisfaction of many students with information and computing fields is the false perception that the fields are based upon esoteric knowledge and only result in solitary coding efforts to create arcane software systems. Our outreach to students will emphasize the societally interesting and fulfilling careers available in the field. For example, Informatics is a field in which a student can have an significant positive impact ranging from entrepreneurial activities to community building. Research has indicated that impact of this type can improve the appeal of a technical major to many members of under-represented groups (*e.g.* women).

Poor teaching and unengaging pedagogy have traditionally reduced participation in STEM and other fields by students from under-represented groups. The Informatics Department is committed to both quality teaching and to engaged learning. The major will utilize pedagogical methods (*e.g.* flipped classroom, team-based learning) that promote student engagement and build community among the students in the major. This will help to attract new students to the "Informatics community" and to promote retention. These efforts should help attract and retain students from under-represented groups who might not be sufficiently motivated to try or remain in the major on their own.

2.5. Academic and Other Support Services

Summarize the academic advising and support services available to help students succeed in the program.

The Advisement Services Center at the University at Albany provides mandatory academic advising for all students until they have completed their first year and/or are admitted into their academic major of choice – whichever comes later. Each student is assigned an individual academic advisor and is encouraged to meet regularly with that advisor. The advisor will assist the student in identifying the major that best suits their interests, skills and goals. Additionally, the advisor will provide assistance in making a successful transition to college-level studies.

Once a student decides to major in Informatics, and has completed at least a year of study, that student will be advised by the Informatics academic advisor. This advisor is also an instructor in the program, and an alumnae, making her uniquely qualified to connect with these majors. She will perform all the traditional functions of advisement: general mentoring, orientation to the major, substantive and procedural advisement in the major, supervision of many internships and orientation to the career world. The Informatics advisor also works with instructors to track students at risk.

Advising PLUS is a university-wide service that offers "the help you need, when you need it." Students in academic difficulty receive personal consultation in which the source of the difficulty is identified, and a strategy for addressing it is created. Advising PLUS sponsors review sessions, individual tutoring, facilitates referrals and follow up to services such as departmental tutoring, university counseling, and the full range of student appeals and services available on campus.

2.6. Prior Learning Assessment

If this program will grant credit based on Prior Learning Assessment, describe the methods of evaluating the learning and the maximum number of credits allowed, **or check here [X] if not applicable**.

2.7. Program Assessment and Improvement

Describe how this program's achievement of its objectives will be assessed, in accordance with *SUNY policy*, including the date of the program's initial assessment and the length (in years) of the assessment cycle. Explain plans for assessing achievement of students' learning outcomes during the program and success after completion of the program. Append at the end of this form, a plan or curriculum map showing the courses in which the program's educational and, if appropriate, career objectives – from Item 2.3(b) of this form – will be taught and assessed.

An external advisory board of industry and campus representatives will recommend updates and modifications needed to keep the degree program current within the ever-changing technology fields. This group will be consulted formally at least once each year.

Each academic program develops a self-study and undergoes an external review process on a seven-year cycle. In addition to other important criteria - program review self-study documents describe past, current, and future assessment activities. The Department of Informatics is next scheduled for program review in the academic year 2015 – 2016, and this new major will be reviewed at that time and seven years hence.

Internally, the department plans to do annual reviews of two student learning outcomes on a three year rotation. See attached curriculum map for SLOs. This annual and systematic review will allow for thoughtful analysis, modification, and re-assessment of each SLO during the years between self-study the cycle. Specific exercises have been identified in specific courses as contributing to the SLO. For instance, but not limited to:

SLO1: Examine and evaluate the relationship between tech & society.

INF 100: Intro to Info in the 21st Century

In this class, students will be introduced to *information and technology in today's world*. They will begin to explore topics related to the relationship between technology and society. The class will be broken up into a series of modules. For each module, students will create a bog post that relates the module material to current events. *We will assess their understanding of these relationships by the reviewing these blog posts.*

INF 301: Emerging Trends in Technology
In this class students further explore the *relationship between technology and society* by looking at emerging trends in technology and examining their societal impacts. W*e will assess student understanding of the material in a final project where they predict and research an emerging trend and include in their analysis the potential societal impacts.*
INF 499: Senior Seminar in Informatics
In this class students will focus on a particular technology company to explore issues of society and technology, such as privacy, censorship, and how technology has influenced society. We will assess mastery of the concepts through team and individual presentations.

SLO2: Demonstrate a range of practical applications of technology.
INF 201: Intro to Web Technologies
In this class, the practical applications of technology to which students will be introduced are: *client-based Web design*. We will assess student understanding of the material through evaluation of a large and complex project where the students will create a dynamic website.
INF 202: Intro to Data & Databases
In this class, the practical applications of technology to which students will be introduced are: *the collection and uses of data and databases*. We will assess student understanding of the material through a project where the students will describe a data problem, recommend a solution, and implement a prototype.
INF 203: Intro to Systems & Networking
In this class, the practical applications of technology to which students will be introduced are: *the basics of network protocols*. We will assess student understanding of the material through a series of four labs where students will model these protocols.
INF 305: Digital Project Management
In this class, the practical applications of technology to which students will be introduced are: the *current practices in digital project management.* We will assess student understanding of the material through review of a final paper on a digital project management topic of their choice (with instructor approval).
ICSI 105: Introduction to Computing and Information
The practical application of technology to which students will be introduced in this class is: *programming*. CSI 105 is a module and portfolio-based class where students complete three modules, one of which is programming. We will assess student understanding of the material through the completion of the programming portion of their course portfolios.

SLO 3: Apply skills learned in the classrooms to real-world situations.
All students will have to complete three classes from the list of classes below, except for online-only students who will have the option of completing INF 469 for nine credits. We will assess the completion of this SLO through the students' final reflection for each class they complete.

- **I INF 465 Senior Capstone Project**
- **I INF 466 Undergraduate Research**
- **I INF 467 Technology-based Community Support**
- **I INF 468 Undergraduate Internship**
- **I INF 469 Undergraduate Internship for Online IT Students**
- **E APS 487 Peer Mentoring**

SLO 4: Demonstrate a mastery of specialization field
To master a specialization students will be required to complete a series of courses in that field. The fields in which students can concentrate are designed to be nimble and reflect current trends. The courses that make up these concentrations will be influenced by our external review board who will help us to ensure that students are meeting the current competencies employers are looking for. One of the ways we will assess the successful completion of the mastery of these specialization fields will be the successful completion of these concentration classes. Another way will be the employment rate of our graduates. Are they getting jobs in those fields?

SLO 5: Understand and apply research principles.
INF 200: Research Methods for Informatics
In this class students will be introduced to *key methods and techniques in research*. This will be assessed by reviewing their final research proposal.

MAT 108: Statistics
In this class students cover topics such as frequency distributions, measures of central tendency and dispersion, probability and sampling, estimation, testing of hypotheses, linear regression, and correlation. Students will be assessed by how they integrate these principles into the INF 200 research proposal.

Section 3. Sample Program Schedule and Curriculum

Complete the **SUNY Undergraduate Sample Program Schedule** to show how a typical student may progress through the program. Either complete the blank Schedule that appears in this section, or complete an Excel equivalent that computes all sums for you, and can be found at http://www.suny.edu/provost/academic_affairs/app/forms.cfm. Terms 5-8 may be deleted for programs leading to associate's degrees.

See Appendix 8 for program schedules for each version of the program (concentrations).

a) If the program will be offered through a nontraditional schedule (i.e., not on a semester calendar), what is the schedule and how does it impact financial aid eligibility? ***NOTE: Consult with your campus financial aid administrator for information about nontraditional schedules and financial aid eligibility.***

Not applicable

b) For each existing course that is part of the proposed undergraduate major (including cognates and restricted electives, but not including general education), append a catalog description at the end of this document,.

See Appendix 3

c) For each new course in the undergraduate program, append a syllabus at the end of this document. NOTE: Syllabi for all courses should be available upon request. Each syllabus should show that all work for credit is college level and of the appropriate rigor. Syllabi generally include a course description, prerequisites and corequisites, the number of lecture and/or other contact hours per week, credits allocated (consistent with *SUNY policy on credit/contact hours*), general course requirements, and expected student learning outcomes.

See Appendix 4

d) If the program requires external instruction, such as clinical or field experience, agency placement, an internship, fieldwork, or cooperative education, append a completed External Instruction form at the end of this document.

N/A

Section 4. Faculty

a) Complete the **SUNY Faculty Table** on the next page to describe current faculty and to-be-hired (TBH) faculty.

This table includes six (6) new faculty hires in support of the new Informatics program. This provides sufficient faculty for the program. One additional TBH line is available and will be filled in advance of enrollment growth.

b) Append at the end of this document position descriptions or announcements for each to-be-hired faculty member.

See Appendix 5

NOTE: *CVs for all faculty should be available upon request. Faculty CVs should include rank and employment status, educational and employment background, professional affiliations and activities, important awards and recognition, publications (noting refereed journal articles), and brief descriptions of research and other externally funded projects. New York State's requirements for faculty qualifications are in Part 55.2(b) of the Regulations of the Commissioner of Education.*

c) What is the institution's definition of "full-time" faculty?

A full time faculty member is one who holds an appointment with a 100% time commitment.

SUNY Faculty Table

Provide information on current and prospective faculty members (identifying those at off-campus locations) who will be expected to teach any course in the major. Expand the table as needed. Use a separate Faculty Table for each institution if the program is a multi-institution program.

(a)	(b)	(c)	(d)	(e)	(f)
Faculty Member Name and Title/Rank (Include and identify Program Director with an asterisk.)	**% of Time Dedicated to This Program**	**Program Courses Which May Be Taught (Number and Title)**	**Highest and Other Applicable Earned Degrees (include College or University)**	**Discipline(s) of Highest and Other Applicable Earned Degrees**	**Additional Qualifications: List related certifications, licenses and professional experience in field.**
PART 1. Full-Time Faculty					
* George Berg, Associate Professor	60%	IINF 300 INF 308 INF 401 INF 407 INF 408 INF 452 INF 453 INF 454 INF 455 INF 465 INF 466 INF 496	PhD Northwestern University	Computer Science	Associate Professor at UAlbany
Peter Shea Associate Professor	10%	INF 465 INF 466 INF 496	PhD University at Albany	Education	Online learning
Kevin Knuth Associate Professor	25%	INF 451 INF 466	PhD University of Minnesota	Physics	
* Jennifer Goodall, Assistant Dean/Instructor	90%	INF 100X INF 301 INF 401 INF 465 INF 466 INF 467 INF 469 INF 496 INF 499	PhD University at Albany	Information Science	
Caroline Buinicky, Instructor/Advisor	100%	INF 100X INF 301 INF 401 INF 467 INF 469 INF 496 INF 499	PhD University at Albany	Information Science	Undergraduate advisor for Information Science/Informatics

Luis Luna-Reyes, Associate Professor (Start date: January 2015)	50%	INF 100X INF 300 INF 301 INF 302 INF 307 INF 363 INF 401 INF 465 INF 466 INF 496 INF 499	PhD University at Albany	Information Science	Research Associate at the Center for Technology in Government
Amir Masoumzadeh, Assistant Professor, start Fall 2014	100%	INF 100X INF 200 INF 203 INF 301 INF 303 INF 306 INF 403 INF 404 INF 453 INF 454 INF 455 INF 465 INF 466 INF 496 INF 499	PhD University of Pittsburgh	Information Science	Cybersecurity
Lenore Horowitz, Lecturer, start Fall 2104	100%	INF 100x INF 203 INF 301 INF 302 INF 305 INF 308 INF 362 INF 401 INF 462 INF 465 INF 466 INF 467 INF 469 INF 496 INF 499	PhD University at Albany	Information Science	Online teaching
Jonathan Muckell, Lecturer, start 2014	100%	INF 100x INF 301 INF 305 INF 465 INF 466 INF 467 INF 469 INF 496 INF 499	PhD University at Albany	Information Science	

Norman Gervais, Lecturer, start Fall 2014	100%	INF 100x INF 301 INF 304 INF 307 INF 403 INF 404 INF 408 INF 465 INF 466 INF 467 INF 469 INF 496 INF 499	MS University at Albany	Geography and Planning	
Mei Chen, Visiting Associate Professor, start Fall 2104	10%	INF 308 INF 407 INF 202 INF 203	PhD Carnegie Melon University	Computer Science	Robotics, INF PhD Program Director

Part 2: Part-Time Faculty					
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Faculty Member Name and Title/Rank (Include and identify Program Director with an asterisk.)	**% of Time Dedicated to This Program**	**Program Courses Which May Be Taught (Number and Title)**	**Highest and Other Applicable Earned Degrees (include College or University)**	**Discipline(s) of Highest and Other Applicable Earned Degrees**	**Additional Qualifications: List related certifications, licenses and professional experience in field.**
Luis Ibanez, Instructor	100%	INF 202 INF 308 INF 362 INF 462 INF 470 INF 496	PhD Ecole nationale supérieure des Télécommunications de Bretagne	Computer Science	Technical Leader at KITWARE Inc. WHS Task Force Collaborator (Open Source).
Jeff Baez, Instructor	100%	INF 201 INF 303 INF 306	MS University at Albany	Information Science	Information Technology Specialist III at OITS – Technology Cluster (cyber-security)
Jacques Bastien, Instructor	100%	INF 201 INF 302 INF 362 INF 363 INF 462	BA, University at Albany	Information Science	Owner, Boogie Graphics (Social media)
Jenson Jacob, Instructor	100%	INF 202 INF 308	BE Ramrao Adik Institue of Engg	Computer Science	Enterprise Architect - Platforms at New York State Office of CTO (web development and accessibility)
Kristin Albright, Instructor	100%	INF 201 INF 302 INF 362 INF 462	MS University at Albany	Information Science	Information Technology Specialist for the New York State Office of Technology Services, Web and Accessibility Workgroup Co-Chair.
Hao Wang, Instructor	100%	INF 202 INF 300 INF 407 INF 408	PhD Oho State University	Economics	CIO of the State University of New York, CIO of the Research Foundation for SUNY and Managing Director for Accenture, and Director of Mental Health Informatics at Columbia University.
Matt Ammerman, Instructor	100%	INF 303 INF 304 INF 462 INF 496	BA University at Albany	English	Co-Founder, Apprenda (Cloud computing)
Alex Jurkat, Instructor	100%	INF 100x INF 202 INF 300 INF 301 INF 407	MS University at Albany	Information Science	Procurement Data Analyst at Clough Harbor (data analytics, online learning, gamification)

(a)	(b)	(c)	(d)	(e)	(f)
Faculty Member Name and Title/Rank (Include and identify Program Director with an asterisk.)	**% of Time Dedicated to This Program**	**Program Courses Which May Be Taught (Number and Title)**	**Highest and Other Applicable Earned Degrees (include College or University)**	**Discipline(s) of Highest and Other Applicable Earned Degrees**	**Additional Qualifications: List related certifications, licenses and professional experience in field.**
Part 3. Faculty To-Be-Hired (List as TBH1, TBH2, etc., and provide title/rank and expected hiring date.)					
TBH-1, Assistant Professor, Spring 215 or Fall 15	100%	INF 100X INF 200 INF 203 INF 301 INF 303 IINF 306 INF 403 INF 404 INF 453 INF 454 INF 455 INF 465 INF 466 INF 496 INF 499	PhD	Cybersecurity	

Section 5. Financial Resources and Instructional Facilities

a) What is the resource plan for ensuring the success of the proposed program over time? Summarize the instructional facilities and equipment committed to ensure the success of the program. Please explain new and/or reallocated resources over the first five years for operations, including faculty and other personnel, the library, equipment, laboratories, and supplies. Also include resources for capital projects and other expenses.

There has been a significant commitment to provide instructional resources for this program from several sources, including the SUNY High Needs program and the SUNY 2020 program. These have been made available immediately so that the appropriate number of faculty will be in place as the program begins. Equipment and supplies are included in the faculty start-up funds.

b) Complete the five-year SUNY Program Expenses Table, below, consistent with the resource plan summary. Enter the anticipated academic years in the top row of this table. List all resources that will be engaged specifically as a result of the proposed program (e.g., a new faculty position or additional library resources). If they represent a continuing cost, new resources for a given year should be included in the subsequent year(s), with adjustments for inflation or negotiated compensation. Include explanatory notes as needed.

SUNY Program Expenses Table

SUNY Program Expenses Table

Program Expense Categories	Expenses (in dollars)					
	Before Start	Academic Year 1:	Academic Year 2:	Academic Year 3:	Academic Year 4:	Academic Year 5:
YEAR (example 2013)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
(a) Personnel (including faculty and all others)	$321,909	$995,647	$1,013,786	$1,032,469	$1,053,119	$1,074,181
(b) Library	$0	$0	$0	$0	$0	$0
(c) Equipment	$15,000	$103,550	$98,300	$98,150		
(d) Laboratories	$0	$0	$0	$0	$0	$0
(e) Supplies	$4,000	$103,550	$98,300	$98,150		
(f) Capital Expenses	$0	$0	$0	$0	$0	$0
(g) Other (Specify): Students (Assistantships)	$236,977	$218,966	$225,535	$232,301	$239,270	$246,448
h) Sum of Rows Above	**$577,886**	**$1,421,713**	**$1,435,921**	**$1,461,070**	**$1,292,389**	**$1,320,629**

Explanatory notes:

Section 6. Library Resources

a) Summarize the analysis of library collection resources and needs *for this program* by the collection librarian and program faculty. Include an assessment of existing library resources and accessibility to those resources for students enrolled in the program in all formats, including the institution's implementation of SUNY Connect, the SUNY-wide electronic library program.

The University Libraries collect, house, and provide access to all types of published materials in support of the research and teaching of the schools, colleges, and academic departments of the University. This evaluation considers those portions of the libraries' collections and services that support a Bachelor of Science program in Informatics, which will rely on existing computer science and information studies resources.

Library Collections

The University Libraries are among the top 115 research libraries in the country. The University Library, the Science Library, and the Dewey Graduate Library contain more than two million volumes and over 2.8 million microforms. The Libraries subscribe or provide access to over 75,000 serials. Many thousands more are made available via subscriptions to full-text databases. Whenever possible, current subscriptions are available online. Additionally, the Libraries serve as a selective depository for U.S. Government publications and house collections of software and media. The print collection supporting Computer Science is housed in the Science Library. The print collection for Information Studies is housed in the Dewey Graduate Library. Other print resources for related subjects like Business, Education, Sociology, and Documentary Studies are housed in the University Library. Online resources (journals, databases, e-books, digital libraries) are available on and off campus, all hours of the day.

Books

There are over 16,000 books in those portions of the Library of Congress (LC) classification scheme which relate to computer science; specifically in classes QA 76 (computer science), Q 327 (pattern recognition), Q 335-336 (artificial intelligence), QA 267-268 (machine theory), TA 1630-1650 (image processing), TK 5105 (computer networks), and TK 7880-7895 (computer electronics). In addition, there are over 10,000 ebooks in the *Springer Computer Science eBook Collection*, many covering the concentrations available in the Informatics program. Dozens of new e-books are automatically added to this collection each week. Furthermore, the University Libraries subscribe to *Safari Tech Books Online*. This resource provides online access to nearly 150 computing books from publishers like O'Reilly, Addison Wesley, New Riders, Prentice Hall, and Sams.

There are also over 65,000 books in the Library of Congress classification scheme which relate to information science: Z 4-115.5 (books in general), Z 116-659 (book industries and trade), Z 662-1000.5 (libraries), Z1001-8999 (bibliography) and ZA (information resources).

The University Libraries employ the approval plan services of Yankee Book Peddler. The approval plan is used to obtain from selected major publishers and university presses current English language books written at the university or research level in the area of computer science. Books are acquired according to a profile, which outlines subject areas to be included or excluded.

Standing orders are another means of book acquisitions. Annuals, multi-volume series, and conference proceedings are among the types of materials received in this manner.

Books that are not acquired on approval or by standing order may be selected for purchase by the Computer Science or Information Studies bibliographer. Suggestions for book purchases are accepted from faculty and students. Books may be purchased in print or e-book formats.

Furthermore, subscriptions to the *ACM Digital Library* and the *IEEE Computer Society Digital Library* include online access to a significant and growing collection of these association's conference proceedings and workshops.

Journals and Databases

The University Libraries has current subscriptions to 30 journals in the field of computer science. Students and faculty also have access to numerous other computer science journals and magazines via the SUNY-wide subscription to Elsevier's *ScienceDirect*, and the University Libraries' subscriptions to *ACM Digital Library, IEEE Computer Society Digital Library*, *IEEE All-Society Periodicals Package*, and *Computers & Applied Sciences Complete*. The University Libraries also subscribes to several general or interdisciplinary journals, as well as journals in related subjects.

To evaluate the strength of the journal holdings in Information Studies, the University Libraries journal holdings were compared to the Library and Information Science list of journals in the 2012 *Journal Citation Reports* database. The study found that the University Libraries owns or provides access to 72 of the 85 (84.7%) of the journals listed. This indicates a strong journal collection in support of Information Science.

The University Libraries subscribe to the following databases. All of which have either informatics content or index journals, magazines, books, or conference proceedings related to Informatics.

- *Academic OneFile*
- *ACM Digital Library*
- *Business Source Complete*
- *Computer Source*
- *Computers & Applied Sciences Complete*
- *Ebsco Academic Search Complete*
- *Education Full Text (H. W. Wilson)*
- *IEEE Computer Society Digital Library*
- *IEEE All-Society Periodicals Package*
- *INSPEC*
- *Library, Information Science and Technology Abstracts (LISTA)*
- *Library and Information Science Abstracts (LISA)*
- *MasterFILE Premier*

- *Safari Tech Books Online*
- *Springer Computer Science eBook Collection*
- *Web of Science*

Reference Collections

The reference section of the Science Library houses a collection of resources in support of the science and technology programs. Numerous reference books related to Informatics are available; these include titles such as *Concise Encyclopedia of Computer Science, Encyclopedia of Computer Science, Encyclopedia of Data Warehousing and Mining,* and *Oxford Dictionary of Computing.* The University Libraries also provide access to online reference resources like *Collins Dictionary of Computing, Dictionary of the Internet, Encyclopedia of Biometrics, Encyclopedia of Computer Science, Encyclopedia of Cryptology, Encyclopedia of Database Systems, Encyclopedia of GIS, Encyclopedia of Multimedia,* and *Handbook of Semantic Web Technologies.*

The more general reference resources available in the University and Dewey libraries augment this collection. There are also numerous general online reference resources available to the University community. This includes resources like *Books in Print, Ulrich's International Periodicals Directory, American Men & Women of Science, Dissertation Abstracts,* and *WorldCat.* Furthermore, the Dewey Library contains numerous reference books related to Information Studies. This includes titles such as *ALA Glossary of Information Science, Dictionary of Information Science and Technology, Dictionary of Information and Library Management, Encyclopedia of Communities of Practice in Information and Knowledge Management, Encyclopedia of Library and Information Science, Encyclopedia of Information Science and Technology,* and *International Encyclopedia of Information and Library Science.*

Interlibrary Loan and Delivery Services

The University Libraries' Interlibrary Loan (ILL) Department borrows books and microforms, and obtains digital copies of journal articles and other materials not owned by the Libraries from sources locally, state-wide, nationally, and internationally. ILL services are available at no cost to the user for faculty, staff, and students currently enrolled at the University at Albany. Users can manage their requests through the use of ILLiad, the University Libraries' automated interlibrary loan system, which is available through a Web interface at https://illiad.albany.edu/.

The University Libraries also provide delivery services for books and articles housed in any of the three libraries. Books can be delivered to one of the libraries or departmental addresses. Articles are scanned and delivered electronically via email. The Libraries also provide free delivery services to the home addresses of online learners and people with disabilities. Delivery services are managed through ILLiad as well.

Access to Research Collections

Library memberships provide access to many other libraries in the Capital District region, in New York State, and throughout the United States and Canada. In the Capital District, the Capital District Library Council (CDLC) sponsors the Direct Access Program (DAP). Upon presentation of a CDLC DAP card, students and faculty may borrow from or use 47 academic, public, law, medical, and technical libraries, including the Rensselaer Polytechnic Institute Libraries, which has excellent technical collections. Students and faculty may also use the collections of the New York State Library. Statewide, students and faculty may use and borrow materials from most of the SUNY-affiliated institutions.

Summary and Conclusions

The University Libraries are and have been committed to build and maintain collections in support of the primary areas associated with Informatics, mainly computer science, information technology management, and information studies. There are robust book, journal, magazine, and proceedings collections to support the students in the Informatics B.S. program's areas of concentration. Online collections are available on and off campus, and online learners can request books and articles using the Libraries' document delivery services. Materials not owned by the University Libraries may be obtained through interlibrary loan.

b) Describe the institution's response to identified collection needs and its plan for library development.

As per the librarian's report, there are no outstanding collection needs in relation to the Informatics major.

Section 7. External Evaluation

SUNY requires external evaluation of all proposed bachelor's degree programs, and may request an evaluation for a proposed associate degree or certificate program in a new or emerging field or for other reasons.

Is an external evaluation required? [ ] No [X] Yes

If yes, list below all SUNY-approved evaluators who conducted evaluations (adding rows as needed), and **submit a separate electronic document to accompany this form** that contains each original, signed *External Evaluation Report* as well as the single *Institutional Response* to all reports, as described in Section 8. ***NOTE:*** *To select external evaluators, a campus sends 3-5 proposed evaluators' names, titles and CVs to the assigned SUNY Program Reviewer, expresses its preferences and requests approval.*

Evaluator #1	**Evaluator #2**
Name: Dennis Groth Title: Interim Vice Provost for Undergraduate Education (Assoc Prof, Informatics) Institution: Indiana University Bloomington	Name: Mary Beth Rosson Title: Assoc Dean, College of Information Sciences and Technology Institution:The Pennsylvania State University

Section 8. Institutional Response to External Evaluator Reports

As applicable, send a single *Institutional Response* to all *External Evaluation Reports* in the same file that contains the verbatim, signed *External Evaluation Reports*.

Section 9. SUNY Undergraduate Transfer

The State University views as one of its highest priorities the facilitation of transfer.

a) For a **proposed Associate in Arts (A.A.) or an Associate in Science (A.S.) degree,** demonstrate that the program's graduates will be able to transfer into at least two parallel SUNY baccalaureate programs and complete them within two additional years of full-time study, per SUNY policy, by listing the transfer institutions below and **appending** at the end of this document**:**

- two completed *SUNY Transfer Course Equivalency Tables*, one for each transfer institution; and

– a letter from the Chief Academic Officer of each transfer institution asserting acceptance of the completed Transfer Course Equivalency Table.

Baccalaureate Degree Institution	Baccalaureate Program SED Code and Title	Degree

b) For a **proposed baccalaureate program,** document articulation with at least two parallel SUNY associate degree programs for seamless transfer, by **appending documentation of articulation**, such as *SUNY Transfer Course Equivalency Tables* and/or letters of support from Chief Academic Officers at associate degree institutions or their designees. **If transfer does not apply to this program, please explain why.**

Associate Degree Institution	Associate Program SED Code and Title	Degree
Hudson Valley Comm College	30084 Computer Information Systems	AS
Fulton Montgomery Comm College	00853 Computer Information Systems	AAS

NOTE: *Transfer course equivalency tables are needed, despite SUNY Transfer Paths, to ensure that all courses in an A.A. or A.S. program will be accepted for transfer. Official SED program titles and codes can be found on NYSED's Inventory of Registered Programs at http://www.nysed.gov/heds/IRPSL1.html.*

Section 10. Application for Distance Education

a) Does the program's design enable students to complete 50% or more of the course requirements through distance education? [ ] No [X] Yes. If yes, **append** a completed *SUNY Distance Education Format Proposal* at the end of this proposal to apply for the program to be registered for the distance education format.

See Appendix 7

b) Does the program's design enable students to complete 100% of the course requirements through distance education? [ ] No [X] Yes

Section MPA-1. Need for Master Plan Amendment and/or Degree Authorization

a) Based on Guidance on Master Plan Amendments, please indicate if this proposal requires a Master Plan Amendment.
[X] No [ ] Yes, a completed *Master Plan Amendment Form* is **appended** at the end of this proposal.

b) Based on *SUNY Guidance on Degree Authorizations* (below), please indicate if this proposal requires degree authorization.

[X] No [ ] Yes, once the program is approved by the SUNY Provost, the campus will work with its Campus Reviewer to draft a resolution that the SUNY Chancellor will recommend to the SUNY Board of Trustees.

SUNY Guidance on Degree Authorization
Degree authorization is required when a proposed program will lead to a new degree (e.g., B.F.A., M.P.H.) at an existing level of study (i.e., associate, baccalaureate, first-professional, master's, and doctoral) in an existing disciplinary area at an institution. Disciplinary areas are defined by the New York State Taxonomy of Academic Programs. Degree authorization requires approval by the SUNY Provost, the SUNY Board of Trustees and the Board of Regents.

List of Appended and/or Accompanying Items

a) Appended Items: If materials required in selected items in Sections 1 through 4 and Sections 9, 10 and MPA-1 of this form apply to this proposal, they should be appended as part of this document, after this page, with continued pagination. In the first column of the chart below, please number the appended items, and append them in number order.

Number	Appended Items	Reference Items
	For multi-institution programs, a letter of approval from partner institution(s)	Section 1, Item (e)
	For programs leading to professional licensure, a side-by-side chart showing how the program's components meet the requirements of specialized accreditation, Commissioner's Regulations for the profession, or other applicable external standards	Section 2.3, Item (e)
	For programs leading to licensure in selected professions for which the SED Office of Professions (OP) requires a specialized form, a completed version of that form	Section 2.3, Item (e)
1	*OPTIONAL: For programs leading directly to employment*, letters of support from employers, if available	Section 2, Item 2.3 (h)(2)
2	***For all programs*, a plan or curriculum map showing the courses in which the program's educational and (if appropriate) career objectives will be taught and assessed**	Section 2, Item 7
3	*For all programs*, a catalog description for each existing course that is part of the proposed undergraduate major (including cognates and restricted electives)	Section 3, Item (b)
4	*For all programs with new courses in the major*, syllabi for all new courses in a proposed undergraduate major	Section 3, Item (c)
	For programs requiring external instruction, a completed *External Instruction Form* and documentation required on that form	Section 3, Item (d)
5	*For programs that will depend on new faculty*, position descriptions or announcements for faculty to-be-hired	Section 4, Item (b)
6	*For all A.A. and A.S. programs*, Transfer Equivalency Tables and letters of support from at least two SUNY baccalaureate institutions; *for baccalaureate programs that anticipate transfer student enrollment*, documentation of seamless transfer with at least two SUNY two-year programs	Section 9
7	*For programs designed to enable students to complete at least 50% of the course requirements at a distance*, a *Distance Education Format Proposal*	Section 10
	For programs requiring an MPA, a *Master Plan Amendment Form*	Section MPA-1
8	*Sample Program Schedule and Curriculum*	Section 3

b) Accompanying Items - External Evaluations and Institutional Response: If Sections 7 and 8 of this form indicate that external evaluation is required as part of this proposal, please send a separate electronic document to program.review@suny.edu that contains the original, signed *External Evaluation Reports* and a single *Institutional Response* to all reports. The file name should indicate the campus, program title, award and content of the file (e.g., BuffaloU-English-PhD-ExEval).

University at Albany

Program Proposal BS in Informatics

Appendix 1

Letters from potential employers

February 7th, 2014

To Whom It May Concern,

I am writing to you to express my full support of the Informatics Bachelor of Science program at the University at Albany. This program will give new options to students interested in the field of technology. In addition this program will prepare students for open positions that are in high demand.

The curriculum in the proposed BS in Informatics has areas of concentration in cyber security, software development, and data analysis. While larger corporations seek candidates who specialize in one area, many smaller companies seek dynamic individuals who have experience in all of the above.

At Potratz Partners Advertising INC., we are looking for Web Developers, however having experience in application security, or data analytics is a big benefit. Located in Schenectady, New York, we have been looking for qualified candidates for a few months. We recently hired a Web Developer, and a Web Developer intern, and are looking to add another one or two developers immediately. Over the course of this year we are looking to add an additional two to three developers, and more interns as well. We are currently experiencing a large period of growth. If we achieve our projected goals a conservative estimate for hiring would be an addition five to seven developers over the next five years.

Our specific goal in hiring is to hire entry to junior level developers. Having personally conducted the interviews I can say that there is a lack of qualified candidates. The new Bachelors of Science in Informatics would give students a great base in a wide variety of fields. Please do not hesitate to contact me for further information.

Sincerely,

Adam Fahrenkopf - University at Albany Alumnus
Director of Web Development
Potratz Partners Advertising INC.
(518) 631-5505 ext 402 – Adam@ppadv.com

apprenda

Re: Apprenda's Three Year Hiring Plan

Apprenda's 3 year hiring plan contains the expansion of new and existing roles in the following departments:

Sales

- Enterprise Sales Representative
- Sales Representative
- Sales Engineer
- Assistant

Client Services

- Training Management
- Client Service Engineer
- Technical Account Manager
- Business Analyst

Research and Development

- Development Team Lead
- Senior .NET Developer
- Junior .NET Developer
- Senior Java Developer
- Junior Java Developer
- Senior Quality Assurance Analyst
- Junior Test Engineer

Several executive roles will be filled as well.

Hiring velocity will be partially driven by revenue targets. As a point of reference, Apprenda has hired 18 new employees in varying roles in the past 5 months (November '13 - March '14).

Sincerely,

Matt Ammerman

VP, Client Services & Co-founder
Apprenda Inc.
518 928 4817

Hornby Zeller Associates Inc.

www.hornbyzeller.com

48 Fourth Street
Suite 300
Troy, NY 12180
(518) 273-1614
Fax: (518) 273-0431
ny@hornbyzeller.com

373 Broadway
South Portland, ME 04106
(207) 773-9529
Fax: (207) 773-9074
me@hornbyzeller.com

Dept. of Human Services
DCFS Quality Assurance
P.O. Box 1437 Slot# S570
Little Rock, AR 72203
(501) 682-7931
Fax: (501) 682-6815
ar@hornbyzeller.com

75 S. Houcks Road
Suite 201
Harrisburg, PA 17109
(717) 540-7740
Fax: (717) 540-7760
pa@hornbyzeller.com

March 12, 2014

Jennifer Goodall, PhD
Director, Informatics Undergraduate Program
Director, CCIWIT Program
University at Albany, SUNY
Main Campus, Suite LI-84
1400 Washington Avenue
Albany, NY 12222

Dear Jennifer,

As you are aware, Hornby Zeller Associates, Inc. (HZA) is an evaluation, research and consulting firm which uses rigorous data analysis to inform government and non-profit social services agencies about their performance and ability to achieve successful outcomes for the clients they serve. Qualitative and quantitative analyses are both used, with the quantitative ranging from simple data analysis of customer satisfaction surveys to complex data analysis of government agency case management systems.

Over the last several years, HZA has hired several of SUNY Albany's Master's level graduates. Two of our staff came from the School of Social Work and a third from the School of Criminal Justice. We have also had the pleasure of hosting two interns from the university's Computer Science program. What has stood out from each of these hires is that students graduating with a social services degree have limited quantitative analysis skills, despite the school's macro-level program, and those with a technical degree have limited, if any, social services knowledge or knowledge of the field within which they will work. Neither candidate is prepared to enter the job market, at least from a consulting perspective, beyond having limited, basic skills or knowledge.

HZA is pleased SUNY Albany has developed an Informatics Program, one which is designed to better develop the skills its graduates will need to enter the job market competitively. The interdisciplinary approach will not only help technology-focused students learn how to apply their skills in a particular field, it will also give macro-oriented social services students the ability to develop the skills they need for research and evaluation.

As mentioned earlier, this past year HZA has worked with two interns from the university's technology-based program. The goal has been to not only have the interns perform data analysis for our evaluative work, but more importantly to understand the data and how they are used. We have been pleased with the result and plan to continue to work with SUNY Albany to have at least one intern on board in each of the fall and spring semesters, and in some instances, the summer semester as well. Ideally, future interns will come from the

Informatics Program who have an interest in working with social services or government agencies.

We look forward to working with you in the years ahead and helping to prepare graduates for a career in the ever-expanding field of information management.

Sincerely,

Dennis E. Zeller
Principal

Kitware

28 Corporate Drive
Clifton Park, NY 12065 USA
Phone/Fax: (518) 371-3971
www.kitware.com

February 27, 2014

Jen Goodall
Assistant Dean
College of Computing and Information
State University of New York at Albany

Dear Dr. Goodall,

We would like to express our enthusiasm for the new curriculum adopted by the Informatics department.

As a company dedicated to developing and promoting open source software, we are pleased to note that you have included many topics that will prepare students to be active participants in what is sure to be a agile and shifting job market.

Given our involvement with the Open Source Electronic Health Records Alliance (OSEHRA), in service of the US Department of Veterans Affairs, we are especially supportive of the various topics related to healthcare. The introduction of MUMPS as a NoSQL database, and VistA as a special topic class are particularly valuable.

We also appreciate the broad coverage of open source technologies and modern practices of software development as topics in the curriculum. In particular, your use of the revision control system Git, the programming languages Python and Node.js, the use of RESTful interfaces in the web programming classes, and the very use of Team Based Learning, as a way to better prepare the students to the actual team-based work that takes place in modern software companies.

We've employed four interns from Informatics in the past two years and expect that relationship to continue to develop. We anticipate that in the upcoming year, we will be hiring four (4) entry level positions with background in large scale software development, agile methodologies, software quality control, data analysis, open source databases, web development and scripting languages, and twenty (20) positions in five years.

We are also delighted to be able to contribute to the curriculum, by way of direct involvement of some of our technical leaders, in particular Dr. Luis Ibanez, teaching the Data and Databases class and the Special Topics classes on Open Source Software Practices and on Open Source in Healthcare. Several of our engineers have also been pleased to contribute to the workshops on Git training that have taken place over the past year.

Kitware

28 Corporate Drive
Clifton Park, NY 12065 USA
Phone/Fax: (518) 371-3971
www.kitware.com

During this past summer we already benefited from having four interns for SUNY's Informatics Department, who enabled us to successfully deliver results in a high profile project for the Federal Government. We are looking forward to continue this mutually beneficial relationship.

Sincerely,

W. J. Schroeder

Will Schroeder
President and CEO

ANDREW M. CUOMO
Governor

Empire State Plaza
P.O. Box 2062
Albany, NY 12220-0062
www.its.ny.gov

BRIAN DIGMAN
NYS Chief Information Officer
Director, Office of IT Services

February 14, 2014

Ms. Jennifer Goodall, Ph.D.
Director, Informatics Undergraduate Program
Director, College of Computing and Information Women in Technology (CCIWIT) Program
LI-84; 1400 Washington Avenue
Albany, NY 12222

Dear Dr. Goodall:

As the Chief Technology Officer (CTO) for New York State, it is my pleasure to support the University at Albany's new Bachelor of Science degree program in Informatics. It is essential New York State supports programs to increase the number and diversity of computer science and informatics majors to meet future employment demand in the high-tech sectors.

The NYS Office of IT Services employs nearly 4,000 people, who predominantly work in the field of information technology, cyber-security, interactive user experience, networking, social media, data analytics, and software development. Informatics is a relatively new discipline in government but will certainly become a demand skill as more data driven, cross-jurisdictional, programs and policies are developed and incorporated into public sector service delivery.

The New York State Office of Information Technology Services is committed to building and strengthening the state's information technology workforce through innovative partnerships with institutions of higher education like the University at Albany. We fully support the University at Albany in this exciting new baccalaureate program in informatics.

Sincerely,

Kishor Bagul
Chief Technology Officer
New York State

// troywebconsulting

200 Broadway
Troy, NY 12180
(518) 326-3798

Troy Web Consulting, as part of our strategic operating plan, projects to hire 3-5 new software developers in full time positions over the next 5 years. We have experience steady and consistent growth over the last 11 years and looking at the last 2 years have revised our growth plan up some. We also plan to bring on 5 or more interns as paid positions to grow our current intern program.

Thank you,
Anthony

Anthony T. DeBonis
Head of App Dev
Troy Web Consulting
Anthony@troyweb.com
518-852-1653

University at Albany
Program Proposal, BS in Informatics
Appendix 2
Student Learning Outcomes

Below we list the expected student learning outcomes (SLOs) within the core and within the concentrations. The emphasis here is that the SLOs are fulfilled within the required courses in the core and the individual concentrations. In many cases, SLOs will also be fulfilled by courses (especially electives) beyond those listed. Also, through electives students will achieve advanced competencies beyond the degree baseline ones established here.

INF BS Core

SLO: What do we want students to know and what skills do we want them to have?	**Class: In what classes do they learn this SLO?**	
Capable of working as part of a team	Classes with TBL or other teamwork components.	
Ability to lead a project	I INF 305	
Present data, information, arguments, and research verbally	I INF 301, I INF 499	
Present data, information, arguments, and research visually	I INF 100, I INF 301, I INF 499	
Think critically and solve problems related to current digital, technological, or information challenges	I INF 100, I INF 301, I INF 499, I CSI 105	
Collect and analyze data	I INF 200, I INF 202, I INF 465, I INF 466, A MAT 108	
Apply skills learned in the classrooms to real-world situations	Experiential learning opportunities: I INF 467, I INF 468, I INF 469, E APS 487	
Create a web site with interactive design elements as appropriate for a specific audience	I INF 201, I CSI 105	
Understand the basics of computer networking	I INF 201, I INF 203, I CSI 105	
Explore computing and information in today's society	I INF 100, I INF 301, I INF 499, I CSI 105	
Create computer programs to address a specified problem	I CSI 105	
Demonstrate and understanding of concepts and issues in digital privacy and security	I INF 202, I INF 203, I CSI 105	
Recognize the importance of data and its organization and manipulation in business, government, and society as	I INF 202, I CSI 105	

INF BS Core		
a whole		
Implement basic design principles	I INF 201	
Distinguish between types and forms of databases, and the types of data problems such databases can address	I INF 202	
Distinguish between types and forms of data, and the potential uses of that data	I INF 200, I INF 202	
Identify current and future trends in information-based technologies	I INF 301	
Demonstrate an ability to critically evaluate the sources, content, and intention of information, along with the ability to communicate, clearly and coherently, any findings to a wider audience	I INF 100, I INF 301	

Concentration: Interactive User Experience

SLO: What do we want students to know and what skills do we want them to have?	Class: What classes do they learn this SLO?	
Understand basic visual design principles	I INF 362	
Predict trends	I INF 202	
Be familiar with a variety of technologies and tools used in web and mobile design	I INF 201	
Write computer programs for various purposes	I CSI 105, I CSI 107	
Design or create new applications, ideas, or products	Experiential learning opportunities: I INF 465, I INF 466, In INF 467, I INF 468, I INF 469	
Back up or modify applications and related data to provide for disaster recovery	I INF 203, I CSI 124X	
Determine sources of web page or server problems, and take action to correct such problems	I INF 203, I CSI 124X	
Critique content and design	I INF 201, I INF 302, I INF 462	
Implement security measures, such as firewalls or message encryption	I INF 203	
Administer Internet/intranet infrastructure, including components such as web, file transfer protocol (FTP), news and mail servers	I INF 201	
Collaborate with development teams to discuss, analyze, or resolve usability issues	Classes with TBL or other teamwork components.	
Test backup or recovery plans regularly and resolve any problems	I INF 203	
Implement updates, upgrades, and patches in a timely manner to limit loss of service, and using appropriate tools	I INF 362	
Create various forms of digital media	I INF 302, I INF 363, A DOC 330, A DOC 406, A DOC 407	
Use communication, and dissemination techniques and methods. This includes alternative ways to inform and entertain via written, oral, and visual media	I INF 462, I INF 499	

Concentration: Cyber-security

SLO: What do we want students to know and what skills do we want them to have?	Class: What classes do they learn this SLO?	
Demonstrate a basic knowledge of computer systems and identify their vulnerabilities.	I INF 203, I CSI I24X	
Demonstrate a basic knowledge of computer networks and identify their vulnerabilities.	I INF 203, I CSI 124X	
Define and compare the different types of computer attacks	I INF 203, I CSI 124X	
Differentiate security vulnerabilities	I INF 306, I INF 452, I CSI124X, I CSI 424	
Demonstrate a knowledge of cryptographic principles, systems and implementations	I INF 306, I CSI 426	
Apply current principles and practices of digital forensics	I INF 306, I INF 401	
Demonstrate a knowledge of security policies and procedures	I INF 203, I INF 306, I INF 452, I INF 453, I INF 455, I CSI 424	
Apply principles and practices of software security	I INF 306, I INF 453	
Create and implement plans to defend computer and networks systems in live exercises.	I INF 306, I INF 455	
Demonstrate an understanding of sources of ongoing updates on security issues, approaches and solutions.	I INF 306, I INF 454, I INF 455, I CSI124X, I CSI 300Z	

Concentration: Computer Networking

SLO: What do we want students to know and what skills do we want them to have?	Class: What classes do they learn this SLO?	
Understand basic network design principles	I INF 203, I INF 303	
Research and communicate networking and related IT issues, prepare proposals, and develop design recommendations.	I INF 200, I INF 303, I INF 403, I INF 496	
Understand network security issues and how they relate to technologies and services that include cloud computing, mobile, and wireless networking.	I INF 306, I INF 403, I INF 404, I INF 452	
Illustrate concepts and technologies of communication and data networks	I INF 203, I INF 303, I INF 403, I INF 470, I INF 496	

Concentration: Computer Networking

Work effectively, both individually and with others, as a network engineer or network administrator in a variety of organizational settings	Experiential learning opportunities: I INF 465, I INF 467, I INF 468	

Concentration: Social Media

Student Learning Outcomes (SLO): What do we want students to know and what skills do we want them to have?	**Class: What classes do they learn this SLO?**	
Competency with current social media platforms	I INF 307	
Compare and utilize third-party social media management tools	I INF 307	
Extrapolating meaning from platform-specific and third-party social media tracking and analytics tools	I INF 202, I CSI 131, I CSI 432	
Predict trends in social media	I INF 202, I CSI 107, I CSI 131, I CSI 432	
Create various forms of digital media	I INF 201, I INF 363, A DOC 224	
Communicate orally and in written form for a variety of purposes (understand when it is important to be less formal and more professional)	I INF 100, I INF 301, I INF 499	
Develop and implement creative social media programs and campaigns	I INF 465, I INF 467, I INF 468, I INF 469, A SOC 255, A SOC 210	
Ability to employ community moderation techniques	I INF 465, I INF 467, I INF 468, I INF 469, A SOC 255, A SOC 270	
Perform outreach activities	Experiential learning opportunities: I INF 465, I INF 467, I INF 468, I INF 469	
Use social media to foster interactivity, engagement, community growth, and loyalty	I INF 401, I INF 465, I INF 467, I INF 468, I INF 469	

Concentration: Data Analytics

Student Learning Outcomes (SLO): What do we want students to know and what skills do we want them to have?	Class: What classes do they learn this SLO?	
Competency with current data management and database platforms	I INF 202, I CSI 431, I INF 407	
Utilize third-party data management tools	I INF 202	
Extrapolating insights from very large data sets	I INF 202, I INF 300, I CSI 131, I CSI 431, I IST 433, I CSI 436	
Using visualization tools to represent meaning from data	I CSI 131, I INF 202, I INF 408	
Use data modeling techniques to represent meaning from data	I INF 202, I INF 408, I INF 451, I CSI 131, I CSI 432, I CSI 436	
Communicate orally and in written form for a variety of purposes (understand when it is important to be less formal and more professional)	I INF 100, I INF 301, I INF 499	
Coding and testing data analysis algorithms	I CSI 131, I INF 451, I CSI 436	
Quantifying uncertainty in analysis results	I CSI 131, I INF 451, I INF 300, I CSI 436	

Concentration: Software Development

Student Learning Outcomes (SLO): What do we want students to know and what skills do we want them to have?	Class: What classes do they learn this SLO?	
Develop software applications at varying levels of proficiency	I CSI 105, I CSI 201, I CSI 310	
Apply principles and practices of object-oriented design to projects	I CSI 201, I CSI 405	
Create software using current practices and design principles	I CSI 418Y, I CSI 455	
Implement debugging and testing principles and practices	I CSI 201, I CSI 310, I CSI 405, I CSI 418Y	
Ability to use multiple software design methodologies (*e.g.* waterfall, agile).	I INF 305, I CSI 418Y	

Demonstrate knowledge of life-cycle management.	I INF 305, I CSI 418Y	
Demonstrate proficiency in team-based software systems design, implementation and testing.	I CSI 105, I CSI 418Y	

Concentration: Information Technology

Student Learning Outcomes (SLO): What do we want students to know? **What skills do we want them to have?**	**Class: What classes do they learn this SLO?**	
Develop and implement IT projects	Experiential learning opportunities: I INF 467, I INF 468, I INF 469	
IT Fundamentals	I INF 201, I INF 202, I INF 203, I INF 308, I INF 499	
Apply concepts of human computer interaction to projects	I INF 201, I INF 302, I INF 308	
Model current principles of information assurance and security	I INF 306, I INF 308	
Analyze information management concepts and fundamentals	I INF 202	
Apply integrative programming techniques and technologies	I CSI 105, I INF 308	
Understand and explain the foundations of networking	I INF 203, I INF 303	
Compare and utilize a variety of platform technologies	I INF 303, I INF 306, I INF 308	
Apply system administration and maintenance tools and techniques	I INF 203, I INF 303, I INF 306, I INF 308	
Apply a variety of web technologies	I INF 201	

University at Albany
Program Proposal BS in Informatics
Appendix 3
Course descriptions of existing courses

Department of Informatics

I INF 100X Information in the 21st Century (3)

Introduction to information and technology in the 21st Century. Different resources, including the Internet, libraries, news sources and other sources of information, hardware, and Web 2.0 technologies will be explored. The primary emphasis of the class is on discovering reliable information sources for any and all subjects so that a student's future research and other pursuits are supported by the methods developed in this course. Each student is called upon to fortify their own individual communication and reasoning skills and will demonstrate the use of those skills through course assignments, class presentations and group activities.

I INF 200 Research Methods for Informatics (3)

In this course students will gain an understanding of key methods, and techniques in research; prepare to critically evaluate, and engage in, research. Topics covered will include: identifying and articulating research problems, posing research questions, research design, data collection strategies, quantitative and qualitative analyses, interpreting results of analyses, and concerns in human subject research. Prerequisite(s): I INF 100

I INF 201 Web Technologies (3)

A technique-oriented introduction to client-based Web design and development technologies, including HTML/XHTML, CSS, JavaScript, digital imaging, file formats, etc.; also the elements of UNIX and networks necessary to understand and implement basic information management and transfer. Prerequisite(s): I INF 100X; not open to students who are taking or have completed I IST 361.

I INF 202 Introduction to Data & Databases (3)

This course introduces students to data and databases. It covers both long-standing relational (SQL) databases and newly emerging non-relational (NoSQL) data stores. The nature of data, Big Data, intellectual property, system lifecycle, and development collaboration are also explored. Team-based activities alternate with hands-on exercises. Prerequisite(s): I CSI 101, 105, 110 or 201 or B ITM 215

I INF 203 Introduction to Networks and Systems (3)

This course provides an introduction to computer networking and computer systems. The course covers the fundamentals of networked computing systems with an emphasis placed on the basics of network protocols and how they operate at all layers of the networking models. The course also introduces students to personal computer internal system components, storage systems, peripheral devices, digital circuits, and operating systems from an introductory computer architecture perspective. Prerequisite(s): I CSI 105 or 201.

I INF 301 Emerging Trends in Information and Technology (3)

This course is designed to address challenges of the 21st century from the information science framework. We will explore emerging technologies and discuss how they alter and create new

information environments. Examples of these technologies include Big Data, 3D Printing, Social Media, Wearable Computing, etc. Attention will be paid to real world uses of these technologies, emphasizing how they are changing business, government, education, and a number of other industries. This course also focuses on career paths for digital citizens in the 21st century. Prerequisite(s): I INF 100

I INF 302 Human-Computer Interactive Design (3)

This course examines human factors, Human-Computer Interaction aspects of application domains, human-centered evaluation, developing effective interfaces, accessibility, emerging technologies, and human-center computing. Students learn several techniques for rapid prototyping and evaluating multiple interface alternatives and principles of visual design. Information visualization, user interface software architecture, and formal methods in HCI will be explored. Prerequisite(s): I INF 301

I INF 303 Intermediate Networking (3) (previously INF 423)

This course is designed to convey the essentials of data communication networks. It will cover concepts, technologies and architectures. There will be practical lessons built into the semester's topics and assignments whenever possible. This course will build on the networking knowledge gained in I INF 203, covering the major conceptual areas balanced with practical discussions and exercises. It will also discuss important network management topics such as domain management and security. Prerequisite(s): I INF 203. Students who have taken INF/IST 423 may not take I INF 203 for credit.

I INF 304 Intermediate Hardware and Operating Systems (3) (previously INF 424)

This primary objective of this course is to provide the student with a detailed understanding of computer systems from an architectural perspective. The material covered in this course, which builds on that learned in I INF 203, is intended to form a foundation of technical knowledge for systems analysis, design, configuration, selection, and management. The primary emphasis is expanding students' technical knowledge of hardware and system software, with topics including advanced digital circuits, integrated circuits, application development, operating systems, file systems, and systems security. Prerequisite(s): I INF 203. Students who have take INF/IST 424 may not take I INF 304 for credit.

I INF 305 Digital Project Management (3)

This course provides an introduction to current practices in project management with a focus on the management of digital projects. It is intended to provide a broad overview of the concepts, issues, tools and techniques related to the management of digital projects from concept to completion. Topics covered include project manager role/responsibilities, project team structure, project documentation, project phases/SDLC, project management methodologies, troubled projects, digital analytics and more. Prerequisite(s): I INF 201 and I INF 202

I INF 306 Information Security and Assurance (3)

Technical aspects of Cyber-security in computer and network systems. The nature of attacks and defense in digital systems; models of vulnerabilities, threats and security; cryptography; forensics; security policies and procedures; software and network security. Prerequisite(s): I INF 202.

I INF 307 Current Topics in Social Media (3)

In this course students will explore current topics and trends in social media. An emphasis will be placed on investigating and evaluating multiple social media outlets, writing across social media platforms, and current trends in managing social media programs. Prerequisite(s): I INF 301

I INF 308 Programming for Informatics (3)

Computer Programming in an Informatics environment. The fundamentals of programming, including introduction to algorithms, object-oriented design, and data structures. Additional topics include basic interface design, security, networking, use of data bases, and mobile and other non-traditional computing platforms. Prerequisite(s): I CSI 105 and I INF 100.

I INF 362 Intermediate Interactive Design (3)

A technique-oriented intermediate exploration of client-based Web design and development technologies, using current and emerging technologies. Design, planning, security, administration and management of websites will also be examined. Prerequisite(s): I CSI 101, 105, 110, or 201, I INF 201.

I INF 451 Bayesian Data Analysis and Signal Processing (3)

This course will introduce both the principles and practice of Bayesian and maximum entropy methods for data analysis, signal processing, and machine learning. This is a hands-on course that will introduce the use of the MATLAB computing language for software development. Students will learn to write their own Bayesian computer programs to solve problems relevant to physics, chemistry, biology, earth science, and signal processing, as well as hypothesis testing and error analysis. Optimization techniques to be covered include gradient ascent, fixed-point methods, and Markov chain Monte Carlo sampling techniques. Only one version of I INF 451 may be taken for credit. Prerequisite(s): A MAT 214 (or equivalent) and I CSI 101 or 201.

I INF 468 Undergraduate Internship (3, may be repeated for a total of 6)

The internship has two components. (1) work experience in position related to student's interests in computing and information. Interns are expected to spend eight (8) hours per week during the semester at their internship location. (2) Academic seminar where students and faculty mentor meet together monthly to discuss their experiences and general career preparation topics. Assignments may include preparing a resume and cover letter, career development, assessing skills for and barriers to career development, and planning for graduate or professional school. Students are expected to research, identify and find their own possible internship opportunities. This activity will help student to identify their own career goals and manner in which they may best be achieved, and it will also help students to learn career preparation skills that will be useful after graduation. All internship opportunities must be reviewed and approved by appropriate faculty prior to course registration. May be repeated for up to 6 credits. Prerequisite(s): permission of instructor, junior or senior standing and a minimum GPA of 2.50.

I INF 470 Physical Computing (3)

This course introduces programmable microcontrollers, digital chips that are used to control electronics and robotics projects. In this course students will simultaneously develop the electronic circuits and associated software for controlling hardware components including sensors and mechanical parts. Topics include electronics fundamentals, analog/digital (A/D) devices, pulse-width modulation (PWM) and embedded programming. Course has hands-on lab setting with a final group project. Prerequisites: Informatics juniors or seniors.

I INF 496 Special Topics (3)

The contents of this course will vary from semester to semester. Each offering will cover an advanced topic in Informatics. May be repeated for credit when content varies. Prerequisite(s): permission of instructor, and junior or senior standing.

I INF 499W Senior Seminar in Informatics (3)

This course helps students develop integral professional skills, including presentation of ideas through written and verbal communication, within an Informatics framework. Students will focus on a particular technology company or issue as a mechanism for developing critical thinking and teamwork skills. Prerequisites: Informatics seniors only.

Department of Computer Science

I CSI 105 Computing and Information (3)

A broad introduction to computer and information sciences and related disciplines. All of these fields study various aspects of information and the modern digital computer. Among the central topics of this course, students will learn basic computer programming because understanding how computers work is a key to understanding their use across all of the disciplines in Computing and Information. The topics include what we can and cannot known through computing, interactions between technology and humans, and a series of contemporary applications of the disciplines. The course includes critical readings, multiple perspectives, formulation and defense of opinions, common themes among diverse topics, and skills and practice of teamwork.

I CSI 124X Computer Security Basics (3)

An introduction to security in computers and networks for a general audience. The operation of computers and networks is explained to show how they are the basis for attacks. The course will confer a basic but comprehensive understanding of how computer and network attacks (*e.g.* viruses, worms, denial of service) work. Also, how a general user of computers can defend her or himself from current and future attacks.

I CSI 201 Introduction to Computer Science (4)

Computer algorithms and their representation. The principle of information hiding and its relation to program block structure. File structure and access methods. The efficient use of computational resources. Program development and style.

I CSI 300Z Social, Security and Privacy Implications of Computing (3)

The ethical and moral implications of using computers to affect the lives of individual and collective members of human society. Material drawn from a variety of topics, including security and privacy in computers, networks, security measures, and human users, data banks vs. rights to privacy, intellectual property, open vs. closed software, software piracy, unauthorized access, and other computer crimes. Prerequisite(s): I CSI 101, 110, 201 or other hands-on course in programming and permission of the instructor.

I CSI 310 Data Structures (3)

Commonly used abstract data structures and their implementation. The use of pointers and recursive programming. Stacks, queues, lists, and trees, and their application to such problems as sorting and searching. Analysis of algorithms for using these structures. Prerequisite(s): I CSI 201.

I CSI 405 Object Oriented Programming Principles and Practice (3)

Object oriented software design principles (abstraction, polymorphism and inheritance; design patterns) with emphases on how they are embodied in a contemporary programming language, the principles of the structure, features and operation of such languages and systems, and increasingly complex API examples, design and implementation problems and projects to build proficient design, problem solving, programming and technology skills. Class presentation and discussion of some team developed project designs. A brief review of Java basics is given but proficiency in Java is highly desirable for the current course. This is not a course for programming beginners. Prerequisite(s): *C* or better in I CSI 310 or sufficient proficiency demonstrated to the instructor. Normally offered fall semester only.

I CSI 418Y Software Engineering (3)

Software engineering principles, the role of abstraction in programming, abstract data types, modularization and module interfaces, specifications, and teamwork. Project work in contemporary concurrent and object-oriented languages. Prerequisite(s): I CSI 405. Normally offered spring semester only.

I CSI 424 Information Security (3)

This course covers the broad spectrum of technical issues surrounding computer security and intrusion detection. Topics considered include: viruses, worms, host- and network-based vulnerabilities and countermeasures, database security, intrusion detection, and privacy and legal issues. Facilities for securing hosts and limiting vulnerability are also discussed. Unlike in a systems administration class, detailed operational issues are not discussed. Prerequisite(s): I CSI 400 or 402.

I CSI 426 Cryptography (3)

Course Description: The making of ciphers to encode information is the subject of cryptography. This course covers the field from its origins in early historic times through its most up-to-date implementations and uses in digital computers. Various ciphers will be shown and their security assessed. This latter is known as cryptanalysis – the attempt to break a cipher in order to read the underlying message. The course will emphasize how cryptography and cryptanalysis are intimately related, and how the arms race between the two has motivated progress throughout their history. Prerequisite(s): I CSI 333. Corequisite(s): I CSI 403.

I CSI 431 Data Mining (3)

A course on data mining (finding patterns in data) algorithms and their application to interesting data types and situations. We cover algorithms that address the five core data mining tasks: prediction, classification, estimation, clustering, and associations. Course projects will involve advanced topics such as algorithm developments for handling large data sets, sequential, spatial, and streaming data. Prerequisite(s): I CSI 310.

Department of Information Studies

I IST 433 Information Storage and Retrieval (3)

Methods of analyzing, storing, retrieving information and their relationship to perceived costs and benefits in information service.

College of Arts & Science Courses

A DOC 224 (= A HIS 224) Nonfiction Media Storytelling (3)

This course explores the use of narrative in books, films, and other works intended to present factual content to the general public. Students will watch, read about, write about, and discuss a range of work, developing tools for analyzing and evaluating nonfiction media in terms of both content and craft. Only one version may be taken for credit. Prerequisite(s): restricted to Documentary Studies Program and History Department majors and minors. Others may be admitted space permitting, and with permission from the instructor. This class is recommended for students planning to take A DOC 412.

A DOC 324 (= A JRL 324) Introduction to Documentary Photography (3)

From Mathew Brady's Civil War photographs, to the work of photographers of the U.S. Farm Security Administration in the 1930s, and through the stunning and emotive images of contemporary social, ethnographic, scientific, and war photographers, documentary photography has experienced a long and vigorous development. In this basic introductory hands-on workshop, students will examine the long heritage of documentary photography as well as the practical lessons to be learned from renowned practitioners. The course explores the use of still photographs to record various aspects of social, political, and cultural life and events. Students will develop their visual storytelling skills through a series of research and fieldwork hands-on projects involving the documentation of various aspects of contemporary life. Students should be familiar with the basics of digital camera operation. Only one version of A DOC 324 may be taken for credit. Prerequisite(s): restricted to Documentary Studies Program and Journalism majors and minors. Others may be admitted space permitting, and with permission from the instructor.

A DOC 330 (= A HIS 330) Foundations of Documentary Web/Hypermedia Production (3)

Web-based or digital multimedia documentaries utilize a variety of hypermedia digital elements to construct compelling, interactive, linear and nonlinear "stories" on nonfiction topics. This course will cover the fundamentals of web site and digital multimedia composition through assigned short projects. When A DOC 330 is taught cross-listed with A HIS 330, the content focus will be history. Prerequisite(s) restricted to Documentary Studies and History majors and minors; all others with permission of instructor. Recommended for students planning to take A DOC/A HIS 407.

A DOC 406 (= A HIS 406) Practicum in Historical Documentary Filmmaking (4)

This course is a hands-on workshop in historical documentary filmmaking. It will introduce students to the all aspects of historical documentary production—from pre-production planning, research, and writing, to production (filming/videotaping interviews, recording voiceover narration, lighting, filming reenactments), and finally, post-production (editing and mixing actualities, music, narration, interviews, still photographs). The course, in short, is designed to teach students practical, technical skills and is a perfect follow-up to A DOC 335, which examines the history and theory of documentary filmmaking. Only one version of A DOC 406 may be taken for credit. Prerequisite(s): permission of instructor.

A DOC 407 (= A HIS 407) Readings and Practicum in Digital History and Hypermedia (4)

This course introduces students to the practice of history in the digital age. The emergence of the World Wide Web has opened up new avenues for researching, analyzing, and presenting the past–but has also raised new questions about producing quality historical scholarship in this open environment. This course will work on two fronts, looking first at the current state of the field of "digital history," from issues of narrative and hypertext theory to some of the best (and worst) practices of current historical websites. At the same time, as a central component of the course, students will work in collaboration to build their own well-researched and historically sound web projects. Previous experience with building websites is welcomed but not required. Only one version of A DOC 407 may be taken for credit. Prerequisite(s): permission of instructor.

A MAT 108 Elementary Statistics (3)

Frequency distributions, measures of central tendency and dispersion, probability and sampling, estimation, testing of hypotheses, linear regression, and correlation. Only one of A MAT 108 and B ITM 220 may be taken for credit. Not open for credit by students who have taken A MAT 308. Prerequisite(s): three years of high school mathematics.

A SOC 210 Sociology of Culture (3)

The social settings within which culture—literature, painting, theatre, fashion, popular magazines, graffiti, television—are produced and consumed. Special attention is paid to the development of artistic careers, the forces shaping markets for artistic objects and performances, the effects of censorship, and class differences in the consumption of culture. Prerequisite(s): A SOC 115.

A SOC 220 Introduction to Social Research (3)

Examination of the assumptions and techniques of social research: problems of design, data collection, quantitative and qualitative analysis; review of current research in professional journals; the uses of survey research; application of concepts through individual and class projects. For Sociology majors and intended majors, A SOC 220 is restricted to A-E grading after matriculation at Albany. Prerequisite(s): A SOC 115.

A SOC 221 Statistics for Sociologists (3)

Introduction to quantitative analysis of sociological data: methods of summarizing and describing univariate distributions including the use of tables and graphs; methods of examining relationships between two or more measures; statistical inference and hypothesis testing. For Sociology majors and intended majors, A SOC 221 is restricted to A-E grading after matriculation at Albany. Prerequisite(s): A SOC 115.

A SOC 255 Mass Media (3)

The role of newspapers, radio, television, and motion pictures in American society. Changes in these media and their functional relationship to education, the economy, the political process, and public opinion. Prerequisite(s): A SOC 115.

A SOC 270 Social and Demographic Change (3)

This is an intensive course in the use and understanding of Census and other state and federal data sources for community analysis. While the concentration is on the use of the Decennial Census and annual American Community Survey, other state and federal agency sources will also be explored. The

objective of the course is to examine sources of economic and demographic data and understand how they can be used to tell the story of our communities. Through understanding their uses and limitations, you will prepare a comprehensive community profile and analysis of population change. The class will also introduce basic techniques of demographic analysis as they relate to community analysis. Experience with MS Excel recommended. Prerequisite(s): A SOC 115 or 115Z.

School of Education

E APS 487 Institute in Education (1-9)

Special course, not part of the pattern of regular offerings, designed to meet particular nonrecurring needs. May be repeated for credit when content varies.

University at Albany

Program Proposal BS in Informatics

Appendix 4

Syllabi for new courses

I INF 300: *Probability and Statistics for Data Analytics* (3 credit hours)

Fall 2014

Instructor: Norman Gervais

Office location: BA 313
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
Probability and statistical methods applied to the analysis of various kinds of data. Includes underlying theoretical justification and appropriateness for different models and analyses. Conceptual and implemented approaches to data analysis.

Prerequisites
The prerequisite course for INF 300 is A MAT 108, *Elementary Statistics*.

The primary concepts from that course that are relevant in this course are

- Frequency Distributions
- Probability
- Sampling
- Linear Regression
- Correlation

The course will build on these concepts, and add several more.

Team-Based Learning
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Understand the implications of different data distributions for analysis.
- Understand the conceptual difference between Bayesian and frequentist statistics.
- Be able to apply several basic statistical data analysis models.
- Understand and be able to demonstrate properties of data that affect analysis, such as sample size, bias, *etc*.
- Demonstrate both conceptual and practical knowledge of pattern recognition.
- Demonstrate both conceptual and practical knowledge of predictive modeling techniques.
- Demonstrate knowledge of advanced techniques in statistically based data analysis.

Readings
Required readings
Mathematical Statistics and Data Analysis, J. A. Rice, 2007, 3rd Edition, Cengage, Ebook: $86.49, Available online. ISBN 13: 978-0-534-39942-9.

Supplemental readings
N.A.

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the Fall 2014 semester is **November 4** for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, *etc*., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

Course work and examinations are considered individual exercises. Copying the work of others is a violation of university rules on academic integrity. Individual course work is also key to your being prepared and performing well on tests and exams. Forming study groups and discussing assignments and techniques in general terms is encouraged, but the final work must be your own work. For example, two or more people may not create an assignment together and submit it for credit. If you have specific questions about this or any other policy, please ask.

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Allowing other students to see or copy your assignments or exams
- Examining or copying another student's assignments or exams
- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)

- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

CCI Student Center
The College of Computing and Information Student Center (LI-84) offers tutoring, career development, social events and academic advising. Please stop by or email at ccistudentcenter@gmail.com. Visit the CCI Facebook page for more details and upcoming events: http://www.facebook.com/CollegeofComputingandInformation#

Course Outline and Schedule

The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction, Overview	
2	Data Distributions	
3	Statistical Concepts	
4	Statistical Models	
5	Bayesian v. Frequentist Statistics	
6	Basics of Data Analysis	
7	Regression Models	
8	Linear and Logistic Models	
9	Properties of Data Sets that Affect Analysis	
10	Pattern Analysis and Recognition	
11	Predictive Modeling	
12	Advanced Techniques: Markovian Models	
13	Advanced Techniques: Machine Learning Models	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40X%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 363: *Digital Design* (3 credit hours)

Fall 2014

Instructor: Michael Campion Leczinsky

Office location: BA 3XX
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
An introductory course to applying design theory to the development and delivery of digital media with emphasis on digital imagery, video, and music. Topics may include consumption of digital media on a variety of devices, creation, acquisition, editing and processing of digital content. Students will develop an appreciation for the role that each media element may contribute to the final user experience. Students will cultivate an understanding of how public policy issues apply to technology, in particular copyright, privacy and freedom of expression. Prerequisite(s): INF 201.

Prerequisites
INF 201.

Team-Based Learning
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to:

- Use Principles of Design
    - Apply principles of visual design to different forms of media
    - Appreciate the stages of media forms as technological evolution.
    - Approach media design from a purpose-driven perspective.

    - Analyze, critique, and create different types of informational and artistic visualizations
- Address Social and Policy Issues
    - Develop familiarity with copyright law and its application to the digital age.
    - Cultivate appreciation for the privacy rights of users
    - Recognize the role of elements of media in social and political dialog.
- Use Development Tools
    - Develop expertise on the use of software tools for acquiring and editing digital media: images, audio and video.
    - Appreciate the different requirements of delivery platforms such as mobile and desktop devices.
    - Develop mastery of information visualization tools including presentation software.

Readings
There is no textbook required for this class. Readings will be assigned through Blackboard. Please check Blackboard every week for assigned readings.

Additional Materials
Students will to have an account on GitHub.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

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Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the Fall 2014 semester is **November 4** for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook,

etc., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
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The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

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- Allowing other students to see or copy your assignments or exams
- Examining or copying another student's assignments or exams
- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification

- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Unit One: Introduction

Meeting 1:
Readings: Syllabus

Unit Two: Principles of Design in Digital Media

Meeting 2: Gestalt Principles
Meeting 3: Design Elements of Different Forms of Digital Media
Meeting 4: User-driven Design
Unit Three: Media, Culture and Society
Meeting 5: Evolution of New Digital Technologies
Meeting 6: Impact of Digital Media on Society
Meeting 7: Networked Media and Social Action

Unit Three: Legal Context of Digital Media and Internet Governance

Meeting 8: Privacy
Meeting 9: Intellectual Property
Meeting 10: Media in Online Political Environments

Unit Four: Development Tools

Meeting 11: Using HTML5, CSS to include media in your website/ Using HTML5 for Mobile and Desktop Platforms
Meeting 12: Using Audacity, Blender for audio editing
Meeting 13: Using GIMP/Photoshop
Meeting 14: Final Paper Presentations

Grading

A-E graded

Due Dates

Assignments and class activities documentation delivered via Blackboard or github by midnight will be deemed handed in that day. You are responsible for handling course due dates.
Individual Assignments/Peer Assessment: Assignments should be turned in on or before the due date (see Course Schedule/Timeline). You will lose 1 point for each late day.
Class activities: Class activities will include "challenge" section. You must submit your solutions to these challenges to blackboard.
You have four chances to change the due date of an assignment/activity. You must inform the instructor of the changes you need to make at least three days before the due date posted by the instructor.

Final Paper/Presentation

Peer Evaluation
At the end of the semester, you will be asked to evaluate the "helpfulness" of your team members and assign a grade that counts as part of their grade for INF 362.

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40X%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 401: *Digital Citizenship* (3 credit hours)

Fall 2014

Instructor: Ethan Sprissler

Office location: BA 3XX
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:

The purpose of this course is for students to explore themes of digital citizenship through the close examination of case studies. Students will be asked to look to current issues and cases involving digital citizenship and apply themes, such as the ethical use of information, in their examination and discussion of them.

Prerequisites

INF 301.

Team-Based Learning

This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals

By the end of the semester, you should be able to:

- Identify and explain the nine elements of Digital Citizenship[1].
- Apply the nine elements of Digital Citizenship in your examination of case studies.
- Model multiple perspectives when evaluating a case.
- Formulate opinions about the case studies
- Clearly communicate those opinions in multiple formats.

[1] http://digitalcitizenship.net/Nine_Elements.html

Readings
In this course we will not be using a textbook. Instead we will be using *readings* from various sources. These will be in multiple formats, including but not limited to news articles, video clips, infographics, etc.

Additional Materials
Many in class team activities will require the use of some device with Internet access. So, in order to mimic a *real world* setting we will be a BYOD (bring your own device) class. Students are encouraged to bring any device they have and are comfortable using to all classes.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the Fall 2014 semester is **November 4** for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

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Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),

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Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Syllabus/Course Expectations	Syllabus Rat
2	Nine Elements of Digital Citizenship	Rat 1
3	Nine Elements of Digital Citizenship	
4	Case 1: Arab Spring	Rat 2
5	Case 1: Arab Spring	
6	Case 1 Team Presentations	
7	Case 2: Tyler Clementi: Rutgers	Rat 3

8	Case 2: Tyler Clementi: Rutgers	
9	Case 2: Team Presentations	
10	Case 3: Edward Snowden	Rat 4
11	Case 3: Edward Snowden	
12	Case 3 Team Presentations	
13	Wrap Up	Final Project Due

Assignments

Reading Assessment Tests
Students are required to complete all readings before the first day of a module. The Reading Assessment Tests (RAT) will be based on these readings. All readings can be found on Black Board.

Case Team Presentations:
At the conclusion of each case examination teams will present on their opinions and findings. The format of the presentations will be determined as we proceed through the semester. Some options include debates, poster gallery walks etc.

Final Project
Each student will complete a final project where they independently explore a case study in Digital Citizenship. The case you pick is up to you, as long as it relates to Digital Citizenship in some way. This is meant to challenge you but to also enable you to identify and explore an area that is interesting to you.

The final project has two parts: 1) an annotated bibliography and 2) an individual project.

Annotated Bibliography
Each student will complete an annotated bibliography where they will state what their case study is, list 5 sources about their case, summarize these sources, and discuss how they relate to your case.

Individual Project
Each student will complete a final project that shows their knowledge of their case. The way you demonstrate that knowledge is up to you. The content of the project can be a traditional written paper. But, I encourage you to be creative. Try writing a play, a short story, or speech. Similarly you can be creative with the format of the project. It can be a written piece, a presentation, a video, a poster, a screencast. Anything goes, as long as you receive prior consent from the instructor. For example, if you were exploring WikiLeaks maybe make a video in a documentary style or write a speech as if you were Julian Asange.

We will discuss the project and go over the guidelines more as we progress through the semester.

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40X%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 403: *Advanced Networking and Security* (3 credit hours)

Fall 2014

Instructor: TBD

Office location: BA 3XX
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:

Provides an advanced coverage of networking with a specific focus on network security and cryptography. Networking security is examined through a study of digital signatures and certificates, authentication protocols, and firewalls and key establishment and management. Also considered are security issues related to people's use of computer networks, communication channels, mobile devices, and the Internet. Also examined are new access control paradigms such as Java security and .NET security. Prerequisite(s): I INF 303, I CSI 105

Prerequisites

INF 303 and CSI 105.

Team-Based Learning

This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals

By the end of the semester, you should be able to:

- Explain concepts in cryptography, including public and secret key and digital signatures and the theory of cryptographic algorithms.
- Understand common network vulnerabilities and attacks and prevention and protection methods

- Explain the proper security of both non-realtime (ie-email) and realtime (web) systems and services.
- Understand the specific challenges of current computing networks and systems, including mobile (WiFi, Bluetooth, cellular, etc).

Readings
Gollman: *Computer Security* 3e, Wiley, 2011 ISBN 9780470741153. In addition, there will be selected information distributed via Blackboard.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

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If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the Fall 2014 semester is **November 4** for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

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- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),

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Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Class	Topic	Readings	Notes
1	Intro		
2	Advanced Security Models	Chapter 12	
3			
4	Cryptography (Modular Arithmetic, Hashs, Digital Signatures / RSA, Encryption / Ciphers, Performance and Strength)	Chapter 14	H/W 1 Due
5			
6			

7	Key Establishment (Protocols, Kerberos, Public-Key, Trusted Computing)	Chapter 15	
8			
9	Communications Security (Threats, Tunnels, IP Security, SSL/TLS)	Chapter 16	Project 1 Due
10			
11	Test 1		Chapters 12, 14-16
12	Network Security (Threats / TCP Hyjacking/Flooding attacks, DNS Issues, Firewalls, Intrusion Detection Systems, Honeypots	Chapter 17	
13			H/W 2 Due
14			
15	Web Security (Threats, Session issues / cookies poisoning/privacy/stealing, javascript hijacking, web services security)	Chapter 18	
16			
17	Mobility (GSM Security, UMTS, Mobile IPv6 security, WLANs/WEP issues/WPA, Bluetooth security)	Chapter 19	H/W 3 Due
18			
18			
19	New Access Paradigms (Java Security, .NET Security, DRM)	Chapter 20	Project 2 Due
20			
21	Test 2		Chapters 8-12
22	Special Topics	TBA	
23			
24			
23	Final Project Presentations		H/W 4 Due
25	Final Project Presentations		
26	Final Project Presentations		
27	Last Class / Wrap-up		All Final Projects Due

Evaluation:
The accomplishment of course objectives will be assessed in class by applying the concepts and software for solving security-related problems in individual projects and an exam.

PROJECTS AND GRADING:

1. Three projects: 15 points each (45 points) – includes a final project with presentation
2. Two tests: 20 points each (40 points)
3. H/W: 10 points
4. Participation / Attendance: 5 points

Grading Scale

A: 100-95 points A-: 94-90 points
B+: 89-87 points B: 84-86 points B-: 80-83 points
C+: 79-76 points C: 75-70 points
D: 69-60 points
E: 59 points and below

I INF 404: *Advanced Systems and Security* (3 credit hours)

Fall 2014

Instructor: TBD

Office location: BA 3XX
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
This course is designed to provide an advanced coverage of systems with a specific focus on cyber-security. Engineered security is examined through the application and introduction to authentication protocols and intrusion detection for Unix, Windows and databases and general software security. Also considered are security issues related to people's use of systems including policies and practices for password management and protecting privacy rights. Students also study options for maintaining business continuity in the event of a disruption of business operations. Security models such as Bell-LaPadula are introduced and studied. Specific case studies are used to highlight the choices that must be made to balance operational efficiency of business functions with protecting the business from the onslaught of security threats. Prerequisites: I INF304, I CSI 105

Prerequisites
INF 304 and CSI 105.

Team-Based Learning
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to:

- Understand identification and authentication techniques, along with threats and proper protection methods and a variety of operating systems, applications and database systems.
- Understand disaster planning, business continuity, and security certification methods and practices.

Readings
Gollman: *Computer Security* 3e, Wiley, 2011 ISBN 9780470741153. In addition, there will be selected information distributed via Blackboard.

Course Policies

Attendance
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1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
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Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Class	Topic	Readings	Notes
1	Intro / History of Security	Chapter 1	
2	Managing Security	Chapter 2	
3	Risks and Threats		
4	Foundations of Computer Security	Chapter 3	H/W 1 Due
5			
6	Identification and Authentication	Chapter 4	

7			Project 1 Due
8	Access Control	Chapter 5	
9			
10	Reference Monitors	Chapter 6	H/W 2 Due
11	Unix Security	Chapter 7	
12			
13	Test 1		Chapters 1-7
14	Windows Security	Chapter 8	
15			
16	Database Security	Chapter 9	
17			Project 2 Due
18	Software Security	Chapter 10	
19			
20	Intro to Security Models	Chapter 11	H/W 3 Due
21			
22	Security Evaluation	Chapter 13	
23	Test 2		Chapters 8-11, 13
24	Special Topic	TBA	
25	Final Project Presentations		H/W 4 Due
26	Final Project Presentations		
27	Final Project Presentations		
28	Last Class / Wrap-up		All Final Projects Due

The accomplishment of course objectives will be assessed in class by applying the concepts and software for solving security-related problems in individual projects and an exam.

PROJECTS AND GRADING:

1. Three projects: 15 points each (45 points) – includes a final project with presentation
2. Two tests: 20 points each (40 points)
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Grading Scale

A: 100-95 points A-: 94-90 points
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D: 69-60 points
E: 59 points and below

I INF 407: *Modern Issues in Databases* (3 credit hours)

Fall 2014

Instructor: TBD

Office location: BA 3XX
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:

This is an advanced undergraduate course to introduce the students the emerging topics in database systems. This course is especially designed for junior/senior students with emphasis on advanced concepts and algorithms in database systems, topics that are state-of-the-art research, or recent seminal contributions in the broad field of database and information systems.

Prerequisites

INF 202 and CSI 131.

Team-Based Learning

This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals

The goal is for each student in the class to have a lucid understanding of advanced and emerging topics in database systems and related technologies. Training will include team-based pedagogy, hands-on experience, and online tutorials. The scope of this course includes the following.

Module 1: Orientation
System Development Lifecycle/ER Modeling/SQL Basics Review, Command Line, Polyglot Persistence

Module 2: Advanced Relational Issues
Extended ER Model, Normalization, Query Processing, Query Optimization, Transaction Processing, Concurrency Control, Recovery, Database Tuning

Module 3: Distributed Database Issues
Parallel Databases, Inter and Intra Query Parallelism, Distributed Database Features, Distributed Database Architecture, Fragmentation, Distributed Query Processing, MapReduce and Hadoop, Distributed Transactions Processing, ACID and BASE, Concurrency Control

Module 4: Emerging Applications
NoSQL Databases (key-value, bigtable, document, graph), Mobile Database Management, Spatial Indexing Techniques, Data Clustering Algorithms, Data Management Issues in Social Networks and Network Computing Systems, Data Mining and Privacy, Web Search and Web IR, Role based Access Control, Data Warehouse and OLAP, RFID and Sensor Stream data management

Module 5: Emerging Issues
Knowledge Bases, Active and Deductive Databases, Multimedia Databases, Multimedia Data Structures, Multimedia Query languages, Spatial Databases, RFD and SPARQL, Business Process and Workflow Management

Additional Materials
Students will use current available database platforms.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the Fall 2014 semester is **November 4** for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, *etc*., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

Course work and examinations are considered individual exercises. Copying the work of others is a violation of university rules on academic integrity. Individual course work is also key to your being prepared and performing well on tests and exams. Forming study groups and discussing assignments and techniques in general terms is encouraged, but the final work must be your own work. For example, two or more people may not create an assignment together and submit it for credit. If you have specific questions about this or any other policy, please ask.

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Allowing other students to see or copy your assignments or exams
- Examining or copying another student's assignments or exams
- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)

- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
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Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule

The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic
1	*Orientation* System Development Lifecycle/ER Modeling/SQL Basics Review, Command Line, Polyglot Persistence
2	*Advanced Relational Issues* Extended ER Model, Normalization, Query Processing
3	*Advanced Relational Issues* Query Optimization, Transaction Processing, Concurrency Control
4	*Advanced Relational Issues* Recovery, Database Tuning
5	*Distributed Database Issues* Parallel Databases, Inter and Intra Query Parallelism, Distributed Database Features, Distributed Database Architecture
6	*Distributed Database Issues* Fragmentation, Distributed Query Processing, MapReduce and Hadoop, Distributed Transactions Processing, ACID and BASE, Concurrency Control
7	*Emerging Applications* NoSQL Databases (key-value, bigtable, document, graph), Mobile Database Management
8	*Emerging Applications* Spatial Indexing Techniques, Data Clustering Algorithms, Data Management Issues in Social Networks and Network Computing Systems
9	*Emerging Applications* Data Mining and Privacy, Web Search and Web IR, Role based Access Control
10	*Emerging Applications* Data Warehouse and OLAP, RFID and Sensor Stream data management
11	*Emerging Issues* Knowledge Bases, Active and Deductive Databases
12	*Emerging Issues* Multimedia Databases, Multimedia Data Structures, Multimedia Query languages
13	*Emerging Issues* Spatial Databases, RFD and SPARQL, Business Process and Workflow Management

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments

will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	XX%	
	Individual Assignments	XX%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	XX%	
	Team Exercises	XX%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 408: *Analysis, Visualization and Prediction in Analytics* (3 credit hours)

Spring 2015

Instructor: George Berg

Office location: BA 310
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
Principles of data analysis, emphasizing modern statistical and machine-learning based approaches. Also, the important role of simple analyses and visualization to gain an overall understanding of data sets, regardless of size. The role of analytics in creating predictive models of phenomena. The importance of understanding the nature of the data and other methodological considerations.

Prerequisites
The Prerequisite courses for INF 408 are INF 300, *Probability and Statistics for Data Analytics*, and INF 407, *Modern Issues in Databases*.

The primary concepts from those courses that are relevant in this one are a basic knowledge of:

- Understand the different data distributions.
- Be able to apply several basic statistical data analysis models.
- Understand and be able to demonstrate properties of data that affect analysis, such as sample size, bias, *etc*.
- Demonstrate both conceptual and practical knowledge of simple pattern recognition and predictive modeling techniques.
- Understand SQL basics and hands-on techniques.
- Understand and be able to implement simple relational DB issues.
- Have a knowledge of high-performance, distributed and non-SQL databases.X

This course will build on these concepts, and add several more.

Team-Based Learning (OPTIONAL)
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work

while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals

By the end of the semester, you should be able to

- Understand and be able to demonstrate principles of data analysis.
- Be able to do simple data and visualization analyses to understand a new and complex data set.
- Demonstrate an understanding of and be able to use statistical and machine learning methods for data analysis.
- Demonstrate an understanding of and be able to use visualization analyses.
- Demonstrate an understanding of and be able to use predictive models.

Readings

Required readings

Data Analysis with Open Source Tools, P. Janert, 2010, 1st edition, O'Reilly, $25, Available at usual University at Albany book sellers, as well as via online sellers. ISBN-13: 978-0596802356.

Supplemental readings

N.A.

Additional Materials

Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance

Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

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Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the Fall 2104 semester is **November 4** for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, etc., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

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The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of

course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Allowing other students to see or copy your assignments or exams
- Examining or copying another student's assignments or exams
- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule

The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	The Principles of Data Analysis	
3	Understanding Data – The Role of Simple Analyses and Visualizations	
4	Statistical Approaches I	
5	Statistical Approaches II	
6	Machine Learning Approaches I	
7	Machine Learning Approaches II	
8	Visualization in Analytics I	
9	Visualization in Analytics II	
10	Predictive Models I	
11	Predictive Models II	
12	Advanced Topics	
13	Advanced Topics	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 452: *Computer and Network Security* (3 credit hours)
Spring 2015

Instructor: George Berg
Office location: TBD
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
Theoretical, conceptual and practical aspects of computer and network security. The role of algorithms, systems, humans, software and hardware in computer and network vulnerabilities and defense. The two primary focuses of the course will be on the computer and networks, as centers of vulnerability and defense. The course will emphasize hands on analysis of security issues.

Prerequisites
The Prerequisite course for INF 452 is INF 306, *Information Security and Assurance*.

The primary concepts from that course that are relevant in this one are a basic knowledge of:

- Vulnerabilities, threats and security in computer and network systems.
- Cryptographic principles and applications
- Security policies and procedures
- The role of software in security.

This course will build on these concepts, and add several more.

Team-Based Learning
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Demonstate a knowledge of the nature of attack and defense in compute and network systems.
- Demonstrate and analyze the role of software in security.
- Demonstrate a knowledge of basic principles in security in operating systems.
- Demonstrate a knowledge of the role of network principles in vulnerabilities, attack and defense.
- Demonstrate a knowledge of several different types of attack.
- Demonstrate a knowledge of the basics of security in mobile platforms.
- Demonstrate a knowledge of efforts to create secure computer software architectures.

Readings
Required readings
Computer Security: Principles and Practice, W. Stallings, 2011, 2nd edition, Pearson, $55, Available at usual University at Albany book sellers, as well as via online sellers.

Supplemental readings
N.A.

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

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Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the XXXX semester is INSERT DATE for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, etc., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
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- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)

- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule

The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	Basics of Attack and Defense	
3	Software Elements of Defense	
4	Exploitation Techniques	
5	Operating Systems: Least Privilege and Access Control	
6	Cryptography	
7	Security in Web Systems	
8	Network Protocols	
9	Network Defenses	
10	Attacks: Denial of Service	
11	Attacks: Malware	
12	Security in Mobile Platforms	
13	Secure Computing Architectures	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	

	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 453: *Information Security & Privacy* (3 credit hours)

Spring 2015

Instructor: George Berg

Office location: BA 310
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
Security and Privacy issues in computer and networked systems. The role of systems, design, implementation, etc. on data security in digital systems. Case studies of these roles and how they affect both data security and vulnerability. The legal and ethical aspects of data security and privacy.

Prerequisites
The Prerequisite course for INF 453 is INF 306, *Information Security and Assurance*.

The primary concepts from that course that are relevant in this one are a basic knowledge of:

- Vulnerabilities, threats and security in computer and network systems.
- Cryptographic principles and applications
- Security policies and procedures
- The role of software in security.

This course will build on these concepts, and add several more.

Team-Based Learning
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Demonstrate and analyze the role of usability in security.

- Demonstrate a knowledge of the roles of protocols, access controls, and physical access in security.
- Demonstrate a knowledge of the role of legal obligations and ethical concerns in the security and privacy of data.
- Demonstrate a knowledge of copyright laws, issues and implementations.

Readings
Required readings
Security Engineering, R. Anderson, 2008, 2nd edition, Wiley, $50, Available at usual University at Albany book sellers, as well as via online sellers. The book is also available online from the author (http://www.cl.cam.ac.uk/~rja14/book.html)

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a

day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the XXXX semester is INSERT DATE for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, etc., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its

completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

Course work and examinations are considered individual exercises. Copying the work of others is a violation of university rules on academic integrity. Individual course work is also key to your being prepared and performing well on tests and exams. Forming study groups and discussing assignments and techniques in general terms is encouraged, but the final work must be your own work. For example, two or more people may not create an assignment together and submit it for credit. If you have specific questions about this or any other policy, please ask.

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Allowing other students to see or copy your assignments or exams
- Examining or copying another student's assignments or exams
- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)

3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
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Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	Usability	
3	Protocols and Access Control	
4	Economics	

5	Physical Security	
6	Example – Banking and Finance	
7	Electronic and Information Warfare	
8	Legal Obligations	
9	Ethical Considerations	
10	Copyright and DRM	
11	The Interaction of Individuals, Organizations and Governments	
12	Example – The NSA and American Tech Companies	
13	Advanced Topics	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 454: *Human Aspects of Cyber-Security* (3 credit hours)

Spring 2015

Instructor: George Berg

Office location: BA 310
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:

The roles of individuals, groups, organizations and governments in computer and network security. How the interactions of these with the technical nature of digital systems in many cases forms the core of vulnerabilities. The trade-offs between security and various measures of utility. Conflicting definitions of security at different levels (*e.g*. governmental v. individual). Societal measures and values of security. The course will feature case studies to explore many of these issues.

Prerequisites

The Prerequisite course for INF 454 is INF 306, *Information Security and Assurance*.

The primary concepts from that course that are relevant in this one are a basic knowledge of:

- Vulnerabilities, threats and security in computer and network systems.
- Cryptographic principles and applications
- Security policies and procedures
- The role of software in security.

This course will build on these concepts, and add several more.

Team-Based Learning

This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Demonstrate a knowledge of the role of human in cyber-security.
- Demonstrate a knowledge of and be able to analyze situations for social engineering techniques.
- Demonstrate a knowledge of attacks directed specifically at individuals in organizations.
- Demonstrate a knowledge of and be able to analyze situations involving the interaction of physical and cyber-security.
- Demonstrate the role of policies and training in securing organizations.

Readings
Required readings
The Art of Deception: Controlling the Human Element of Security, K. Mitnick[1] & W. Simon, 2002, 1st edition, Wiley, $21, Available at usual University at Albany book sellers, as well as via online sellers. ISBN-13: 9780471237129

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

[1] Yes, *that* Kevin Mitnick. Who better to tell us about the human element in security. If you do not know who Mr. Mitnick is, you should Google him.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
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Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the XXXX semester is INSERT DATE for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook,

etc., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

Academic Integrity
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The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

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- Examining or copying another student's assignments or exams
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- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification

- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
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Policies from Undergraduate Bulletin:
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Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	The Human Weakness in Cyber-Security	
3	Social Engineering – The Con Game	
4	Case Study: TBD	
5	Email-centered Attacks	
6	Case Study: Spam and Spear Phishing	
7	Physical Security	
8	Case Study: TBD	
9	Industrial Espionage and State-sponsored Attacks	
10	Case Study: TBD (*e.g.* China, NSA)	
11	Remedies: Policies	
12	Remedies: Training	
13	Advanced Topics	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 455: *Prevention and Protection Strategies in Cyber-Security* (3 credit hours)

Spring 2015

Instructor: George Berg

Office location: BA 310
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
The role of security policies and design strategies to minimize security vulnerabilities in computer and networked systems. The affected areas range from the overall design of systems, networking protocols, operating systems and applications software on individual computers. The role of coding standards. End user education and role in security.

Prerequisites
The Prerequisite course for INF 455 is INF 306, *Information Security and Assurance*.

The primary concepts from that course that are relevant in this one are a basic knowledge of:

- Vulnerabilities, threats and security in computer and network systems.
- Cryptographic principles and applications
- Security policies and procedures
- The role of software in security.

This course will build on these concepts, and add several more.

Team-Based Learning
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Demonstrate and be able to analyze the role of policy, design and software implementation in cyber-security.
- Implement a simple design that reflects attention to cyber-security.
- Demonstrate a knowledge of how coding standards can improve cyber-security.
- Demonstrate a knowledge of and ability to analyze the importance of end-user usability in security.

Readings
Required readings
Computer and Information Security Handbook, J. Vacca, 2009, 2nd edition, Wiley, $130, Available at usual University at Albany book sellers, as well as via online sellers. ISBN-13: 9780123943972

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
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Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
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- Lying to the professor about issues of academic integrity
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- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
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Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	

2	The Role of Policy, Design and Implementation in Security	
3	Case Study - TBD	
4	Security Policies	
5	Case Study - TBD	
6	The Role of Design in Security	
7	Case Study - TBD	
8	Code Standards, Practices and Security	
9	Case Study – TBD	With hands-on/lab component
10	The Role of End-users in Security	
11	Usability and Security	
12	Case Study - TBD	
13	Advanced Topics	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I INF 462: *Current Technologies in Interactive Design* (3 credit hours)

Spring 2015

Instructor: TBD

Office location: TBD
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:

Provides an advanced coverage of web design and development, with a focus on current technologies and processes. Students will develop skills on the use of software development practices such as agile development and test-driven development. Develop familiarity with current technologies in particular web-based and mobile applications. Prerequisite(s): I INF 362 and I INF 363.

Prerequisites

INF 362 and INF 363.

Team-Based Learning

This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals

By the end of the semester, you should be able to

1. Design for Mobile Platforms
    a. Incorporate in the design the capabilities of mobile devices (location, audio)
    b. Adapt design to the characteristics of mobile devices (form factor, real estate, touch, lack of keyboards, accelerometers)
    c. Appreciate the difference between native mobile apps and web-based apps running in mobile browsers.
    d. Use content management systems as platform for implementing and delivering a web design.
2. Use Current Development Tools

a. Create web sites using Drupal.
b. Design and implement a web application using EWD (Sencha Touch, ExtJS).
c. Integrate back-end databases with front-end web designs.
d. Develop basic web-based applications to be deployed on mobile devices.
e. Use GIT to collaborate with other developers.
f. Exercise software-testing practices.
g. Appreciate the differences between waterfall and agile methodologies.

Readings
Digital Design Essentials: 100 ways to design better desktop, web, and mobile interfaces (2013) by Rajesh Lal. Notice that this is the same book you have purchased for INF 362.
Using Drupal by Angela Byron, Addison Berry and Bruno De Bondt

Readings will also be assigned through Blackboard. Please check Blackboard every week for assigned readings.

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

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Course Outline and Schedule

Unit One: Introduction
Meeting 1:
Readings: Syllabus
Review: Command line, GIT

Unit Two: Design for the Mobile Interface
Meeting 2:
Readiness Assurance Test over core readings
Readings: Pages 128 - 172 from Lal's book

Design: Mobile interface design principles vs. web interface design
Final Project: Introducing the final project, Proposing a plan regarding team coordination

Meeting 3:
Design: Case studies
Final Project: Selecting a Proposal for the Team
Due:
An individual proposal for the team's final project (Check blackboard for details)
A critique of the interface and design of a mobile application (Check blackboard for details)
Meeting 4:
Web Design: waterfall vs. agile methodologies for web development.
Final Project: A draft of a website prototype and an analysis of user requirements.
Due:
An individual proposal for the website's user requirements and a prototype based on the proposed requirements. (Submit through blackboard)

Unit Three: Drupal
Meeting 5:
Readiness Assurance Test over core readings
Readings: Chapter 1, 2 from Using Drupal textbook
Drupal: Introduction/Basic structure
Final Project: A final version of the website prototype and a discussion of an implementation plan with details about the proposed functionalities. Be prepared to share your prototype with the class.
Due:
A commentary on the proposed prototype (What should we keep/change?)

Meeting 6:
Drupal: Installing and working with modules
Final Project: Based on the implementation plan, provide
A list of tasks assigned to team members.
An initial timeline that shows the expected time of completion.
Due: Progress weekly report on the final project

Meeting 7:
Drupal: Blocks
Readings: Chapter 3, 4 from Using Drupal textbook
Due:
Progress weekly report on the final project
Drupal individual assignment

Meeting 8:
Drupal: Users/Views
Readings: Chapter 5, 6 from Using Drupal textbook
Final Project: Development

Due:
Progress weekly report on the final project
Drupal individual assignment

Unit Four: EWD/M
Meeting 9:
Readiness Assurance Test over core readings
Readings: Readings will be assigned from:
https://www.opensourcesoftwarepractice.org/M-Tutorial/. Check blackboard for specifics.
http://gradvs1.mgateway.com/download/EWD_EXTJS4_Reference.pdf Check blackboard for specifics.
EWD/M: Introduction
Final Project: Development. Be prepared to present your progress to the class.
Due: Progress weekly report on the final project

Meeting 10:
EWD/M: M language/M database
Final Project: Development
Due:
Progress weekly report on the final project

Meeting 11:
EWD/M: EXTJS4
Final Project: Development. Be prepared to present your progress to the class.
Due: Progress weekly report on the final project

Meeting 12:
EWD/M: EWD development
Final Project: Development.
Due:
Progress weekly report on the final project
Individual php/mysql assignment

Meeting 13:
EWD/M: EWD development
Final Project: Development.
Due: Progress weekly report on the final project

Meeting 14:
Final Project: Be prepared to present your final product to the class. There'll be visitors. Make us proud!

Grading
A-E graded

How Grades Will Be Earned

25 points (25%)	Readiness Assurance Tests (breakdown 60% iRAT, 40% gRAT)
25 points (25%)	Individual participation in class activities/assignments
10 points (10%)	Group grade for final project
25 points (25%)	Individual grade for final project
5 points (5%)	Joint project
10 points (10%)	Peer-Graded Assessment of Team Member Performance
100 points (100%)	

Due Dates

Assignments and class activities documentation delivered via Blackboard or github by midnight will be deemed handed in that day. You are responsible for handling course due dates.

Individual Assignments/Peer Assessment: Assignments should be turned in on or before the due date (see Course Schedule/Timeline). You will lose 1 point for each late day.

Class activities: Class activities will include "challenge" section. You must submit your solutions to these challenges to blackboard.

You have four chances to change the due date of an assignment/activity. You must inform the instructor of the changes you need to make at least three days before the due date posted by the instructor.

Final Project

There will be one main project that you will work on throughout the semester. This is a team project; however, your individual assignments will be included as part of this project. You will have the option of using Drupal or EWD to develop this website. Your website must provide a web, as well as a mobile interface. Users should be able to access the site from their desktop browser and from their mobile device.

Peer Evaluation

At the end of the semester, you will be asked to evaluate the "helpfulness" of your team members and assign a grade that counts as part of their grade for INF 362.

Extra Credit

Extra credit can be earned is a number of ways. All require consultation with the instructor before they are commenced. All extra-credit opportunities are capped at no more than 5 points (5%) of your overall grade.

Community: CCI sponsors several events throughout the semester. Any student who attends one or more of those events may receive extra credit.

Other extra credit opportunities may be available. Details to follow.

I INF 465: *Senior Capstone* (3 credit hours)

Spring 2015

Instructor: TBD

Office location: TBD
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:

Students from each concentration will each represent their area of expertise on a class or group project. The projects will either be real-life problems as presented by partnering external organizations or real-life problems as posed and solved by the group itself. A culminating paper, application, or presentation will be produced.

The Instructor of INF 465 will act as a mentor to the student teams and help to guide them through their projects.

May be repeated for credit up to a total of 6 credits with permission of department.

Prerequisites

Senior Informatics majors only.

Course Goals

By the end of the semester, teams of students from various Informatics tracks will have created a product for a real or proposed organization that solves an Informatics challenge for that organization. The key component of the capstone is that students will work on a team with students from other tracks in the major, each bringing their own expertise to examine, research and solve a technology challenge.

Course Policies

Attendance

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Tardiness

Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
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general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule

This course will meet once per week for the first month and then on an irregular basis for regular check-ins. The students will meet regularly for client meetings and team meetings.

Grading

This course is letter graded, A-E.

Team Participation (15%)

Your team will submit peer evaluation grades at two points during the semester. This will contribute to your team participation grade.

Project Proposal (15%)

Your team will submit your project proposal after meetings with the client to determine their needs, research into the problem and a proposal for three possible solutions.

Team Presentation (15%)

Your team will present your final product on XXXX. This will include (1) process, (2) decision points, and (3) final product.

Site Supervisor (25%)

Your site supervisor will submit a grade based on the overall team product.

Individual Reflection (20%)

Each student will submit a 8-10 page paper reflecting on the process, how the team worked together, the challenge and the solution. Students should pay special attention to their contribution, representing their expertise, and how that complemented the overall team goals.

Blackboard may be used as a tool for communication and submittal of status reports and the final research document, as appropriate.

I INF 466: *Independent Research* (3 credit hours)

Fall 2014

Instructor: Jennifer Goodall

Office location: BA 310
Office hours: Tuesdays 2-5
Contact information: jgoodall@albany.edu

Course Information

Course description from *Undergraduate Bulletin*:

Student-initiated research project under faculty guidance. Students will present their research as appropriate. May be repeated for credit up to a total of 6 credits with permission of department.

Prerequisites

Informatics majors, juniors and seniors only.

Course Goals

By the end of the semester, the student should have completed their research project and submitted it to the instructor for review and approval. An oral presentation / summary of the findings and results to the faculty member is also required. The goal of this course is to allow the student to gain experience in conducting faculty-lead research and satisfactorily present the results.

Course Policies

Attendance

There is no formal attendance policy for this class, although the student must regularly communicate with the faculty member and present progress reports on a weekly basis. Meeting times and locations shall be determined as outlined in the grading section, below.

Withdrawal from the course

The drop date for the Fall 2014 semester is November 4 for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is the student's responsibility to take action by this date if they wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Incompletes

As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.

Important: Incompletes will not be given to students who have not fulfilled their course obligations, and who, at the end of the semester, which to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Lying to the professor about issues of academic integrity
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the work performed.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. A Failing mark (U) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course the student should

expect to work a minimum of 9 hours every week on research and outlined activities for the course.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
This course will meet once per week for the first month and then on an irregular basis for regular check-ins. The students will meet regularly for client meetings and team meetings.

Grading
This course is letter graded, A-E.

Project Proposal (10%)
You will submit your project proposal after meetings with the client to determine their needs, research into the problem and a proposal for three possible solutions.

Status Updates (15%)
You will submit regular updates on your progress.

Final Product (60%)
You will submit a 20-25 page research paper.

Final Presentation (10%)
You will present research paper to the Informatics community, schedule pending.

Blackboard may be used as a tool for communication and submittal of status reports and the final research document, as appropriate.

I INF 467: *Technology-Based Community Support* (3 credit hours)

Fall 2014

Instructor: Jennifer Goodall

Office location: BA 310
Office hours: Tuesdays 2-5
Contact information: jgoodall@albany.edu

Course Information

Course description from *Undergraduate Bulletin*:
Students work on-site with a non-profit to provide technology support. Possible projects could include website creation and development, computer lab support, or networking. At least 100 hours/semester are required. Students will also meet with a faculty supervisor throughout the semester and complete a final presentation of their work. May be repeated for credit up to a total of 6 credits with permission of department.

Prerequisites
Informatics majors, juniors and seniors only, permission of instructor.

Course Goals
By the end of the semester, the student should have completed their on-site technology support work for a non-profit organization and should have submitted a summary to the instructor for review and approval. An oral presentation / summary of the specific work conducted must also be provided to the faculty member. The goal of this course is to allow the student to gain experience in working on-site with a non-profit organization to provide technology support and satisfactorily present the results.

Course Policies

Attendance
There is no formal attendance policy for this class, although the student must regularly communicate with the faculty member and present progress reports on a weekly basis. Meeting times and locations shall be determined as outlined in the grading section, below.

Withdrawal from the course
The drop date for the Fall 2014 semester is November 4 for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is the student's responsibility to take action by this date if they wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete

will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their course obligations, and who, at the end of the semester, which to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Lying to the professor about issues of academic integrity
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the work performed.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. A Failing mark (U) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management

For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course the student should expect to work a minimum of 9 hours every week on research and outlined activities for the course.

Available Support Services

Reasonable accommodation

Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule

Though the course is a work opportunity for a not-for-profit organization, with a work schedule defined by the site supervisor, the student must also meet with the instructor to discuss progress, as noted above.

Grading

This course is letter graded, A-E.

Project Proposal (15%)

You will submit your project proposal after meetings with the client to determine their needs, research into the problem and a proposal for three possible solutions.

Presentation (15%)

You will present your final product on a date to be determined. This will include (1) process, (2) decision points, and (3) final product.

Site Supervisor (35%)

Your site supervisor will submit a grade based on the overall team product.

Individual Reflection (35%)

You will submit a 8-10 page paper reflecting on the process, how the team worked together, the challenge and the solution. Students should pay special attention to their contribution, representing their expertise, and how that complemented the overall team goals.

Blackboard may be used as a tool for communication and submittal of status reports and the final research document, as appropriate.

I INF 469: *Internship for Fully Online Students* (9 credit hours)

Spring 2015

Instructor: Jennifer Goodall

Office location: BA 310
Office hours: Tuesdays 2-5
Contact information: jgoodall@albany.edu

Course Information

Course description from *Undergraduate Bulletin*:
The internship has two components. (1) work experience in position related to the Information technology track. Interns are expected to spend at least twenty-four (24) hours per week during the semester at their internship location. (2) Online academic seminar where students and faculty mentor discuss their experiences and general career preparation topics. Assignments may include preparing a resume and cover letter, career development, assessing skills for and barriers to career development, and planning for graduate or professional school. Students are expected to research, identify and find their own internship opportunities. This activity will help student to identify their own career goals and manner in which they may best be achieved, and it will also help students to learn career preparation skills that will be useful after graduation. All internship opportunities must be reviewed and approved by appropriate faculty prior to course registration.

Prerequisites
Permission of instructor, Informatics juniors and seniors only, IT online track only, fully online students, GPA 2.5 minimum.

Course Goals
By the end of the semester, the student should have completed their on-site technology internship and should have submitted a summary to the instructor for review and approval. They should also have completed the requirements of the academic seminar, as outlined in the Internship Guidelines for INF 469 - Student Edition, which is provided to the student at the start of the course. The goal of this course is to allow the student to gain experience in working as an intern for an organization to provide technology support and satisfactorily present the results.

Course Policies

Participation is mandatory for every online academic seminar class. It is not possible to earn a passing grade for the class without consistent participation. Meeting dates and times will be provided to the student in the Internship Guidelines for INF 469 - Student Edition document specific to that semester.

Withdrawal from the course
The drop date for the XXXX semester is INSERT DATE for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is the student's responsibility to take action by this date if they wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their course obligations, and who, at the end of the semester, which to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Lying to the professor about issues of academic integrity
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the work performed.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. A Failing mark (U) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
Interns are expected to spend at least twenty-four (24) hours per week during the semester at their internship location. In addition, students are expected to participate in the seminar as outlined in the Internship Guidelines for INF 469 - Student Edition document specific to that semester.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

Course Outline and Schedule
Though the course is an internship with a work schedule defined by the site supervisor, the student must also attend seminar classes to discuss progress, as noted above and outlined in the Internship Guidelines INF 468 - Student Edition document.

Grading
Though the course is an internship with a work schedule defined by the site supervisor, the student must also attend online seminar classes to discuss progress, as noted above and outlined in the Internship Guidelines for INF 469 - Student Edition document.

Grading
This course is letter graded, A-E.

Project Proposal (15%)
You will submit your project proposal after meetings with the client to determine their needs, research into the problem and a proposal for three possible solutions.

Presentation (15%)
You will present your final product on a date to be determined. This will include (1) process, (2) decision points, and (3) final product.

Site Supervisor (35%)
Your site supervisor will submit a grade based on the overall team product.

Individual Reflection (35%)
You will submit a 8-10 page paper reflecting on the process, how the team worked together, the challenge and the solution. Students should pay special attention to their contribution, representing their expertise, and how that complemented the overall team goals.

ICSC107: Web Programming

Course Description

Course Title:	I CSI 107: Web Programming
Credit Hours:	3
Prerequisites:	None, but should be able to type and use the Internet comfortably.
Instructor:	Dr. Michael Kolta
Outcomes Objectives:	This course is designed to introduce the student to the ever changing world of Web Programming. The student will develop the ability to write original code in HTML, XML, CSS, Javascript, *etc*. to create highly customized websites.
Text (required):	"Programming the World Wide Web" by Robert W. Sebesta, 7th edition is preferred, but 3rd through 6th editions are also acceptable. Can be ordered from the SUNY Albany bookstore.
Materials:	Either your own computer with an Internet connection **OR** access to a public computer with an Internet connection and your own pen drive (aka thumb drive or jump drive)
Software:	Strongly recommended: HTML-kit Can be downloaded for free from http://www.chami.com/html-kit/download/ For those who are on campus, HTML-kit is installed on most public computers provided by the University.
Supplemental Resources:	Internet access
Attendance Policy:	This is an asynchronous learning environment, so attendance is not required. However, your constructive use of Blackboard will make up a part of your final grade.
Classroom Policies:	This course is 100% online. No paper will be used (with the one exception of the required textbook). The Syllabus, and homework assignments will all be posted on the web via UAlbany's Blackboard system. It is the student's responsibility to obtain these resources from the web. There are no traditional lectures with this course. Instead, students are expected to keep up with the Learning Modules at the rate of one per week. Students may work ahead, but falling behind will be detrimental to the student's success. Homework assignments will be a major part of this course. All assignments will be due at precisely 11:59 PM on the due date. Homework deadlines are strict. ABSOLUTELY NO LATE WORK WILL BE ACCEPTED. The only exception is if you have a note from the Dean's Office, which includes all family and medical emergencies. Students are also encouraged to participate in this class via the use of e-mail, chat rooms, and discussion groups. Class participation will make up a part of the final grade.

A word on cheating - DON'T DO IT! If caught, you will receive a 0 on that assignment or test, possibly an E in the class, and perhaps even expelled from school.
On homework assignments, you are allowed to work together, but you must TURN IN YOUR OWN WORK!
Handing in the same code as someone else is cheating.

Course Outline and Schedule: The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	HTML and XHTML	
3	Cascading Style Sheets	
4	Javascript	
5	Javascript, HTML and Dynamic Documents	
6	XML	
7	Flash	
8	PHP	
9	Ajax	
10	Java	
11	ASP.NET	
12	Database Access	
13	Ruby and Rails	

Outcomes Assessment: The final letter grade will be computed according to the following:

1) 1 midterm 15%
2) 1 cumulative final exam 15%
3) homework 50%
4) Class participation 20%
Total 100%

Students can chat with the instructor in real time via the "Virtual Office" chat room. Appointments must be made at least 48 hours in advance via e-mail. Please list two or three different times that you are available and wait for confirmation from the instructor.

The class participation portion of the grade is determined by how much a student constructively uses the tools (chats, discussion threads, e-mail, *etc*.) to further their knowledge of material that is relevant to the course. Asking intelligent questions on the discussion groups or chat rooms is great class participation. Answering other students' questions correctly is excellent class participation.

I CSI 131: Introduction to Data Analytics: Seeking Information in Data with Computation (3 credit hours)

Course Information

Time: TBA
Place: TBD
Blackboard: the course uses the Blackboard Learning System, login at https://blackboard.albany.edu,

instructor Information

Instructor: Dr. Siwei Lyu
Office: LI-83A, in the library building underground branch
Office Hours: TBD and by appointment
Email: please use Blackboard mail system, usually you can rely on a 24-hour turnaround on your questions, as the account will be checked daily.

Course Description

Content: This course will offer an introduction to the key terms, concepts and methods in data analysis, with an emphasis on developing critical analytical skills through hands-on exercises of actual data analysis tasks. In addition, you will learn and practice basic programming skills to use software tools in data analysis. Most importantly, this course aims to help you look at the data and their analysis from new points of view, and nurture a habit of finding relevant patterns in large data sets with appropriate analysis steps. This ability becomes particularly important when you are facing with large amounts of data from your future field and career, be it natural or social science, engineering or business.

We will use the following textbooks for the readings of this course, though other reading materials will be distributed on Black Board Learning Systems occasionally.

- Joel H. Levine and Thomas B. Roos, Introduction to Data Analysis: the Rules of Evidence, Volume 1-2
  The whole book can be read or downloaded from www.dartmouth.edu/~mss/docs/Volumes_1-2.pdf

Goals: By the end of this course, you will be able to

- define and use key terms, concepts and methods in data analysis;
- critically read and interpret data analysis results in science, engineering, and media;
- utilize computation tools to perform basic data analysis on data sets from practical problems;
- write summaries on data analysis results.

Learning Approach: I believe (and research shows) that people learn best from concrete experience, interacting with texts and with other learners/readers, engaging in challenging hand-on tasks, being held accountable for their work, and receiving frequent feedback on their progress. As a result, I have designed this course to provide all of those dimensions using the *Team-Based Learning* (*TBL*) approach. More detailed description of the TBL process is given in Appendix A: Overview of Team-Based Learning.

Process: The course content is divided into several units of study, with each unit focused on a common thematic element of data analysis. You will do much of the processing and analysis tasks in teams into which you will be placed on the first day of class and will stay in for the entire semester. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in the TBL approach.

- First, nearly all graded team work will be preceded by one or more preparatory assignments in the form of readings, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort.
- Second, each individual's contribution to team work will be assessed by his/her teammates during the semester, as well as the instructors. Your interactions and performance in your team will be crucial to your success in the course.

For each unit of study, we will go through a similar set of steps:

- You will read the assigned reading on your own and will take a short Readiness Assessment Test (RAT) on

that section at the beginning of each unit of study. The RAT tests are based solely upon your readings, and not on lecture or any other in-class preparation beforehand. This is an **ABSOLUTELY CRUCIAL POINT:** you must complete the readings for each unit before the unit's start (dates given in the class schedule).

- You will take each RAT twice—once on your own and once as a team. (Both grades count—see Grading and Evaluation for details.)
- As the Unit progresses, you will engage in in-class and out-of-class activities, both on your own and as a member of your team, that are designed to help you gain facility with the learned texts.
- As you work through the reading and activity sequence, there may be occasional mini-lectures to help fill in gaps in your understanding.

Course Outline and Schedule

The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	Description	
3	Variation	
4	Variables	
5	Lines, Signal and Noise	
6	Extrapolation	
7	Hypotheses	
8	Larger Data Sets	
9	Log Analyses	
10	Correlation	
11	Regression	
12	Cases	

13	Advanced Topics	

Grading and Evaluation

There will be an individual set of grades and a team set of grades. You final course grade with be composed of the following elements:

80%! individual grades:

- 30% homework
- 20% individual RAT grades
- 15% assessment test 1
- 15% assessment test 2

20%! team grades:

- 10% team RAT grades
- 10% team exercise grades

Policies

Attendance: Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic "0" for the individual and team activities or assignments missed. In addition, Missing an assignment or activities that happened at the beginning of class before you arrive or at the end of class after you leave early will also earn a "0" for the individual and team activities or assignments missed. If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. **IMPORTANT POINT:** Absolutely no individual make-up opportunities will be available for missed in-class activities. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Late Turn-ins: homework turned in before or on the specified due date and time, in class or submitted through Blackboard, depending on the circumstance, are eligible for 100% of the grade. If you choose to turn in after the due date and time passes, for the first 24 hour period after the due date and time, your assignment will be eligible for 67% of the full grade; for the second 24 hour period after the due date and time, your assignment will be eligible for 33% of the full grade; for the third 24 hour period or later after the due date and time, your assignment will be eligible for 0% of the full grade.

Safety valve: Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve. When course grades are calculated at the end of the semester, each student will be credited with the grade of the equivalent of one individual RAT test, one team RAT test, and graded one team exercise. Roughly speaking, this is the equivalent of two days in the course. It provides a buffer for about one or two absences or severe tardies. However, this is not intended to provide enough points to make up for consistent absences. In case a student is not absent or tardy, these points are capped at 100% of the points normally achievable in each category.

Withdrawal without Penalty: The drop date for the fall 2012 semester is Friday, November 9th for undergraduate students. That is the last date you can drop this course and receive a 'W'. This may happen when you have to miss so many assignments for unforeseeable life problems that it will ruin your grade. **IMPORTANT POINT:** It is your responsibility to take such an action by this date, and don't wait until it's too late to see us when you get in trouble.

Incomplete and Extra Credit Policy: As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time. **IMPORTANT POINT:** Incomplete will
not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. There will be no extra credit work. All students will be expected to complete, and be graded on, the same set of assignments.

Students with Disabilities: Students who feel that they have disabilities that require special arrangements for them to take the course must register with the Disability Resource Center. Students are eligible for special services to which

both the Center and the professor agree. In general, it is the student's responsibility to contact the professors at least one week before the relevant assignment to make arrangements.

Non-Class Related Use of Technology: Any use of electronic devices (cell phone, tablets, personal laptop computers, or lab desktop computers) for non-class purposes (e.g., browsing the web, facebook, twittering, etc) while the class is in session are not allowed. If this is violated in a consistent manner after initial warning is issued by the instructor, the student involved will be expelled from the classroom and receive no grade for the day's activity.

Academic Integrity: The Undergraduate Bulletin states the university's policies on academic integrity, see http://www.albany.edu/undergraduate_bulletin/regulations.html. You will be held to these policies. You are expected to be familiar with them. Any incident of academic dishonesty in this course, no matter how "minor" will result in (a) No credit for the affected assignment, (b) a written report sent to the appropriate University authorities (e.g. the Dean of Undergraduate Studies) and a referral of the matter to the University Judicial System for disposition, (c) a final mark reduction by at least a full letter grade or in the severe case, an F grade of the course.

Appendix A: Overview of Team Based Learning

This course will be using a Team-Based-Learning (TBL) format (www.teambasedlearning.org). This instructional method aims to help develop your learning skills and will be done in a way that will hold teams accountable for using course content to make decisions that will be reported publicly and subject to cross-team discussion/critique. You will be assigned to a team with approximately 5 members. Teams will be formed during the first week of the term. You will sit with your team during all subsequent classroom sessions.

Phase 1 – Preparation: You will complete specified readings for each module

Phase 2 – Readiness Assurance Test: At the first class meeting of each module, you will be given a Readiness Assurance Test (RAT). The RAT test (10 multiple-choice questions) measures your comprehension of the assigned readings, and helps you learn the material needed to begin problem solving in phase 3. Once the test period is over, the instructor may give a short mini-lecture to clarify concepts that are not well understood as evidenced by the individual test scores. The purpose of phase 2 is to ensure that you and your teammates have sufficient foundational knowledge to begin learning how to apply and use the course concepts in phase 3. RATs are closed book/note and based on the assigned readings.

- **Individual RAT (individual RAT)** – You individually complete a 10 question multiple-choice test based on the readings.
- **Group RAT (team RAT)** - Following the individual RAT, the same multiple-choice test is re-taken with your team. These tests use a "scratch and win" type answer cards known as an IF-AT. You negotiate with your teammates, and then scratch off the opaque coating hoping to reveal a star that indicates a correct answer. Your team is awarded 10 points if you uncover the correct answer on the first scratch, 6 points for second scratch, and 2 point for third scratch.
- **Appeals Process** - Once your team has completed the team test, your team has the opportunity to complete an appeal. The purpose of the appeal process is to allow your team to identify questions where you disagree with the question key or question wording or ambiguous information in the readings. Instructors will review the appeals outside of class time and report the outcome of your team appeal at the next class meeting. Only teams are allowed to appeal questions (no individual appeals).
- **Feedback and Mini-lecture** - Following the RATs and Appeal Process, the instructor may provide a short clarifying lecture on any difficult or troublesome concepts.

Phase 3 - In-Class Activities: You and your team use the foundational knowledge, acquired in the first two phases to make decisions that will be reported publicly and subject to cross-team discussion/critique. We will use a variety of methods to have you report your team's decision at the end of each activity. The presentation of your team responses are critical to the team grade. You should expect each team member to present individually and for the entire team to present with smooth transitions.

Appendix B: A guide of being a critical reader

-- adapted from "A Guide of Being A Critical Reader" by CSU Writing Center.

As a reader, you are not a passive participant, but an active constructor of meaning. Exhibiting an inquisitive, "critical" attitude towards what you read will make anything you read richer and more useful to you in your classes and your life. This guide is designed to help you to understand and engage this active reading process more effectively so that you can become a better critical reader.

Let's look at a widely accepted model of reading that is based on cognitive psychology and schema theory. In this model, the reader is an active participant who has an important interpretive function in the reading process. In other words, in the cognitive model you as a reader are more than a passive participant who receives information while an active text makes itself and its meanings known to you. Actually, the act of reading is a push and pull between reader and text. As a reader, you actively make, or construct, meaning; what you bring to the text is at least as important as the text itself.

Below are the major steps you will need to be a critical reader

Previewing

Previewing a text means gathering as much information about the text as you can before you actually read it. You can ask yourself the following questions:

What is my Purpose for Reading?

If you are being asked to summarize a particular piece of writing, you will want to look for the thesis and main points. Are you being asked to respond to a piece? If so, you may want to be conscious of what you already know about the topic and how you arrived at that opinion.

What can the Title Tell Me About the Text?

Before you read, look at the title of the text. What clues does it give you about the piece of writing? It may reveal the author's stance, or make a claim the piece will try to support. Good writers usually try to make their titles do work to help readers make meaning of the text from the reader's first glance at it.

How is the Text Structured?

Sometimes the structure of a piece can give you important clues to its meaning. Be sure to read all section headings carefully. Also, reading the opening sentences of paragraphs should give you a good idea of the main ideas contained in the piece.

Annotating

Annotating is an important skill to employ if you want to read critically. Successful critical readers read with a pencil in their hand, making notes in the text as they read. Instead of reading passively, they create an active relationship with what they are reading by "talking back" to the text in its margins. You may want to make the following annotations as you read:

- Mark the Thesis and Main Points of the Piece
- Mark Key Terms and Unfamiliar Words
- Underline Important Ideas and Memorable Images
- Write Your Questions and/or Comments in the Margins of the Piece
- Write any Personal Experience Related to the Piece
- Mark Confusing Parts of the Piece, or Sections that Warrant a Reread
- Underline the Sources, if any, the Author has Used

Summarizing

Summarizing the text you've read is an valuable way to check your understanding of the text. When you summarize, you should be able to find and write down the thesis and main points of the text.

Analyzing

Analyzing a text means breaking it down into its parts to find out how these parts relate to one another. Being aware of the functions of various parts of a piece of writing and their relationship to one another and the overall piece can help you better understand a text's meaning. To analyze a text, you can look at the following things:

Analyzing Evidence
Consider the evidence the author presents. Is there enough evidence to support the point the author is trying to make? Does the evidence relate to the main point in a logical way? In other words, does the evidence work to prove the point, or does is contradict the point, or show itself to be irrelevant to the point the author is trying to make?

Analyzing Assumptions
Consider any assumptions the author is making. Assumptions may be unstated in the piece of writing you are assessing, but the writer may be basing her or his thesis on them. What does the author have to believe is true before the rest of her or his essay makes sense?
Example: "[I]f a college recruiter argues that the school is superior to most others because its ratio of students to teachers is low, the unstated assumptions are (1) that students there will get more attention, and (2) that more attention results in a better education" (Crusius and Channell, The Aims of Argument, Mayfield Publishing Co., 1995).

Analyzing Sources
If an author uses outside sources to back up what s/he is saying, analyzing those sources is an important critical reading activity. Not all sources are created equal. There are at least three criteria to keep in mind when you are evaluating a source:

- Is the Source Relevant?
- Is the Source Credible?
- Is the Source Current?

Re-reading

Re-reading is a crucial part of the critical reading process. Good readers will reread a piece several times, until they are satisfied they know it inside and out. It is recommended that you read a text three times to make as much meaning as you can.

The First Reading
The first time you read a text, skim it quickly for its main ideas. Pay attention to the introduction, the opening sentences of paragraphs, and section headings, if there are any. Previewing the text in this way gets you off to a good start when you have to read critically.

The Second Reading
The second reading should be a slow, meditative read, and you should have your pencil in your hand so you can annotate the text. Taking time to annotate your text during the second reading may be the most important strategy to master if you want to become a critical reader.

The Third Reading
The third reading should take into account any questions you asked yourself by annotating the margins. You should use this reading to look up any unfamiliar words, and to make sure you have understood any confusing or complicated sections of the text.

Plan your Time Well

Know when the assignment due date is and be sure to allow enough time for all thinking, reading, researching , drafting and revising. Be aware of the class policy on due dates.

I CSI 432: *Network Science* (3 credit hours)

Fall 2014

Instructor: S.S. Ravi

Office location: TBD
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
Social networks have become an important part of the society. This course will consider networks arising in many different contexts (*e.g.* worldwide web, viral marketing, sociology, epidemiology) and present techniques for analyzing such networks. The goal is to understand how the structure of a network influences its behavior. The course will cover the necessary background material in graph theory.

Prerequisites
The Prerequisite course for CSI 432 is CSI 403, *Algorithms and Data Structures* or permission of the Instructor.

The primary concepts from that course that are relevant in this one:

- Knowledge of and ability to use data.
- Knowledge of algorithmic efficiency.

This course will build on these concepts, and add several more.

Team-Based Learning (OPTIONAL)
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Demonstrate a knowledge and ability to implement and analyze the results of supervised learning algorithms.

- Demonstrate a knowledge and ability to implement and analyze the results of unsupervised learning algorithms.
- Demonstrate knowledge of computational learning theory.

Readings
Required readings:
Networks, Crowds and Markets: Reasoning about a Highly Connected World, D. Easley & J. Keinberg, 2010, 1st edition, Cambridge University Press, $32, Available at usual University at Albany book sellers, as well as via online sellers. ISBN-13: 978 0 521 19533 1

Supplemental readings
N.A.

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

Tardiness
Missing an assignment or activity that happened before a student arrives or after a student leaves also earns a zero. No make-up opportunities will be available.

If you know that it will be difficult for you to consistently get to class on time and stay for the entire period, you should take this course at a time that better fits your schedule. Being late frequently will guarantee a low grade for the course.

Make-up Policy
There are generally no make-up opportunities for missed assignments except in extenuating circumstances. Instead of asking to make up missed work, please see the course 'safety valves' described below.

Since there will be occasions in your life when missing a class meeting is simply unavoidable, this course has a no-fault safety valve.

Safety valve 1
You may miss TWO classes and it's associated in-class assignment grade(s). So, if you must miss class for any reason, it will be possible to drop the zero you would automatically receive for missing the assignment. Be careful not to waste your drop on frivolous things early in the semester, since you may need it if you catch a cold or need to leave town for a day later in the semester. If you do not use your safety valve for missed classes, you will be able to use your safety valve to improve your grade, by dropping your lowest two scores.

Plan carefully for classes that you know you will need to miss. Work, religious practice, sports team travel, military duty, club activities, fraternity/sorority obligations, family responsibilities, assignments for other courses, and even brief illnesses, etc—these are your responsibility to manage by using your safety valve. If you need to be out of class for any of these, make sure you have conserved your droppable grade to cover the class you need to miss.

Safety valve 2
If you become seriously ill during the semester, or become derailed by unforeseeable life problems, and have to miss so many assignments that it will ruin your grade, schedule a meeting with me in order to make arrangements for you to drop the course to save your grade point average. Don't wait until it's too late to see me when you get in trouble.

Late homework
Homework is due on the due date at the specified time, in class or submitted through Blackboard, depending on the assignment. Late assignments will be accepted, but at the cost of a full letter grade for missing the first, in-class deadline, and an additional letter grade for each additional 24 hours late. In-class assignments may be done only on the days they are scheduled.

Extra Credit
There may be extra credit work. All students will be expected to complete, and be graded on, the same set of assignments. Details to follow. All extra-credit opportunities are capped at no more than 5 points on your overall grade.

Withdrawal from the course
The drop date for the XXXX semester is INSERT DATE for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

Cell phones & laptops
Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, etc., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

Incompletes
As per the Undergraduate Bulletin, the grade of Incomplete (I) will be given "only when the student has nearly completed the course requirements but because of circumstances beyond the student's control the work is not completed." A student granted an incomplete will make an agreement specifying what material must be made up, and a date for its completion. The incomplete will be converted to a normal grade on the agreed upon completion date based upon whatever material is submitted by that time.
Important: Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

Academic Integrity
It is every student's responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See http://www.albany.edu/undergraduate_bulletin/regulations.html

Course work and examinations are considered individual exercises. Copying the work of others is a violation of university rules on academic integrity. Individual course work is also key to your being prepared and performing well on tests and exams. Forming study groups and discussing assignments and techniques in general terms is encouraged, but the final work must be your own work. For example, two or more people may not create an assignment together and submit it for credit. If you have specific questions about this or any other policy, please ask.

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

- Plagiarism
- Allowing other students to see or copy your assignments or exams
- Examining or copying another student's assignments or exams
- Lying to the professor about issues of academic integrity
- Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)
- Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
- Forgery
- Sabotage
- Unauthorized Collaboration (just check first!)
- Falsification
- Bribery
- Theft, Damage, or Misuse of Library or Computer Resources

Any incident of academic dishonesty in this course, no matter how "minor" will result in

1. No credit for the affected assignment.
2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
3. One of -
    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
    - A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

Policies from Undergraduate Bulletin:
http://www.albany.edu/undergraduate_bulletin/regulations.html

Responsible Use of Information Technology
Students are required to read the University at Albany Policy for the Responsible Use of Information Technology available at the ITS Web Site:
http://www.albany.edu/its/policies_responsible_use_of_IT.htm

Time Management
For every credit hour that a course meets, students should expect to work 3 additional hours outside of class every week (3 x 3= 9). For a three-credit course you should expect to work 9 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

Available Support Services

Reasonable accommodation
Reasonable accommodation will be provided for students with documented physical, sensory, cognitive, learning and psychiatric disorders. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disability Resource Center (Campus Center 137, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. In general, it is the student's responsibility to contact the instructor at least one week before the relevant assignment to make arrangements.

CCI Student Center
The College of Computing and Information Student Center (LI-84) offers tutoring, career development, social events and academic advising. Please stop by or email at ccistudentcenter@gmail.com. Visit the CCI Facebook page for more details and upcoming events: http://www.facebook.com/CollegeofComputingandInformation#

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
2	Generative and Discriminative Learning	
3	Parametric/non-parametric Learning	
4	Neural Networks	
5	Support Vector Machines	
6	Cases/Advanced Topics	
7	Clustering	
8	Dimensionality Reduction	
9	Kernel Methods	
10	Cases/Advanced Topics	
11	Bias Variance Tradeoffs	
12	VC Theory	
13	Large Margins	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
_____			_____
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges

given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

I CSI 436: *Machine Learning* (3 credit hours)

Fall 2014

Instructor: Siwei Lyu

Office location: TBD
Office hours: TBA
Contact information (email, IM, phone, *etc*.)

Course Information

Course description from *Undergraduate Bulletin*:
The various elements of machine learning. Supervised and unsupervised learning. Numeric and categorical approaches. Discriminative and generative models. The importance of understanding the nature of data. Methodological considerations.

Prerequisites
The Prerequisite course for CSI 436 is CSI 310, *Data Structures*.

The primary concepts from that course that are relevant in this one are a basic knowledge of:

- Knowledge of basic computer science principles and skills.

This course will build on these concepts, and add several more.

Team-Based Learning (OPTIONAL)
This course uses a Team-Based Learning approach. On the first day of the course, you will be assigned to a team that will work together throughout the semester. Course grades will be influenced by team performance on team-based assignments. While in many courses, group work can be structured unfairly, such that some students end up doing all the work while everyone shares in the credit, two factors will prevent that from happening in this class. First, nearly all graded team work will be preceded by one or more preparatory assignments, for which each individual will be accountable, thus ensuring that individual team members are each prepared to contribute to the team effort. Second, each individual's contribution to team work will be assessed by his or her teammates during the semester, as well as the instructors.

Course Goals
By the end of the semester, you should be able to

- Demonstrate a knowledge and ability to implement and analyze the results of supervised learning algorithms.
- Demonstrate a knowledge and ability to implement and analyze the results of unsupervised learning algorithms.
- Demonstrate knowledge of computational learning theory.

Readings
Required readings:
There is no conventional textbook. The instructor's lecture notes will serve as the primary reading material.

Supplemental readings
N.A.

Additional Materials
Students will require access to a computer, a modern generation browser, and the Internet.

Course Policies

Attendance
Attendance is mandatory in every class and students are expected to arrive on time. Your in-class performance is key to your success in this course. Attendance, itself, is not graded. Instead, graded in-class activities and assignments constitute an important part of the course grade. It is not possible to maintain a passing average without consistent attendance. Missing class means the student earns an automatic zero for the activities or assignments missed. Because of the nature of the assignments, no make-up opportunities will be available.

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Any incident of academic dishonesty in this course, no matter how "minor" will result in

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2. A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
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    - A final mark reduction by *at least* one-half letter grade (*e.g.* B → B-, C- → D+),
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The College of Computing and Information Student Center (LI-84) offers tutoring, career development, social events and academic advising. Please stop by or email at ccistudentcenter@gmail.com. Visit the CCI Facebook page for more details and upcoming events: http://www.facebook.com/CollegeofComputingandInformation#

Course Outline and Schedule
The following schedule of lecture topics and reading assignments is preliminary and may be changed as the semester progresses. The final schedule and specific homework and lab assignments and materials will be provided in Blackboard. Students are expected to have read the listed material before it is covered in class.

Week	Topic	Notes
1	Introduction and Overview	
	Section I: Supervised Learning	
2	Generative and Discriminative Learning	

3	Parametric/non-parametric Learning	
4	Neural Networks	
5	Support Vector Machines	
6	Cases/Advanced Topics	
	Section II: Unsupervised Learning	
7	Clustering	
8	Dimensionality Reduction	
9	Kernel Methods	
10	Cases/Advanced Topics	
	Section III: Learning Theory	
11	Bias Variance Tradeoffs	
12	VC Theory	
13	Large Margins	

Grading

A-E graded

There will be an individual set of grades, a team set of grades, and a peer evaluation grade. The percentage given to each category and within each category for specific assignments will be determined the second week of class. Once the weighting is determined, a student sample for download will be available on Blackboard so you can track your own grades.

Category	*Assignment Type*	*Weight Within Category*	*Category Weight in the Course*
Individual Grades			**XX%** (40% - 70%)*
	iRAT Tests	40%	
	Individual Assignments	60%	
Team Grades			**XX%** (20% - 50%)*
	gRAT Tests	40%	
	Team Exercises	60%	
Peer Evaluation			**XX%** (10% - 40%)*
Total			100%

* **Grades weights determined by the class on XXXXX.** Student teams will negotiate the exact proportions of individual grades, team grades, and peer evaluation in the course, within the ranges given above. For example, they may agree on individual grades at 50%, team grades at 30% and peer evaluation at 20% of a student's course grade. The percentages must total to 100%.

University at Albany

Program Proposal BS in Informatics

Appendix 5

Position descriptions for faculty-to-be-hired

The College of Computing and Information at the University at Albany – SUNY is seeking candidates for:

1. **One (1) open rank tenure-track faculty position beginning fall 2014 for the Director of its Interdisciplinary Ph.D. program in Information Science in the Informatics Department**. The successful candidate will have an established record of interdisciplinary scholarship with demonstrated potential to develop programs that cross over multiple units in a comprehensive research university.

   Applicants must have a Ph.D. in Computer Science or Information Science or a closely related discipline. Candidates applying at the level of Associate or Full Professor position must also have a strong record of funded research.

   For a complete job description and application procedures, visit: http://albany.interviewexchange.com/jobofferdetails.jsp?JOBID=44921

   Questions regarding the position may be addressed to phdsearch2014@albany.edu.

   For a snapshot of CCI student activities, please visit the CCI Student Center blog at: http://ualbanycci.com/.

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2. **One (1) open rank tenure-track faculty position in the Informatics Department with a focus on role, use, influence, and consequences of information and information communication technologies in government and democratic society beginning fall 2014**. The successful candidate will teach and develop courses that focus on government information policy, strategy, management, technology, use and users while emphasizing relevant analytical information science approaches such as system dynamics, network analysis, systems integration, and/or cyber-security

   Applicants must have a Ph.D. in Informatics, Information Science, Political Science, Public Administration, Management Information Systems or a closely related discipline. Candidates applying at the level of associate or full professor positions must have a strong record of funded research.

   For a complete job description and application procedures, visit: http://albany.interviewexchange.com/jobofferdetails.jsp?JOBID=44969

   Questions regarding the position may be addressed to igdssearch2014@albany.edu

   For a snapshot of CCI student activities, please visit the CCI Student Center blog at: http://ualbanycci.com/.

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3. **One (1) open rank, tenure-track faculty position in the Computer Science Department with a specialization in data analytics and three (3) tenure-track faculty positions in the Informatics and Computer Science Departments at the Assistant Professor level with a specialization in cyber-security beginning fall 2014.** In data analytics, we seek candidates whose research involves the design and implementation of data analytics

Over please

techniques or systems that can be used in other areas (e.g., security, computer forensics, software engineering, natural language processing, social network analysis, physical sciences, social sciences, health sciences, and business). In cyber-security, we seek candidates whose research involves any number of areas across the broad range of technical, organizational, and societal aspects of information assurance.

Applicants must have a Ph.D. in Computer Science or Information Science or a closely related discipline. Candidates who expect to receive their Ph.D. by August 2014 may also apply. Candidates applying for the data analytics open rank position at the level of Associate or Full Professor position must also have a strong record of funded research.

For a complete job description and application procedures, visit:
http://albany.interviewexchange.com/jobofferdetails.jsp?JOBID=44980

Questions regarding the position may be addressed to omnibussearch2014@albany.edu.

For a snapshot of CCI student activities, please visit the CCI Student Center blog at: http://ualbanycci.com/.

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4. **The Informatics Department at the University at Albany, SUNY, is seeking three (3) full-time lecturers for its new BS in Informatics and its online components, to begin fall 2014.** Positions are three-year, renewable, 10 month appointments. Successful applicants will teach in the program core as well as be able to develop and teach a variety of courses in several of the following concentration areas of the new degree program: computer networking, cyber-security, data analytics, information technology, interactive user experience, social media, and software development.

   A Master's of Science (MS) degree in Information Science, Computer Science, or a related discipline from a college or university accredited by the U.S. Department of Education or an internationally recognized accrediting organization is required. Responsibilities include a three-four teaching load, university and department-level service, and participation in the development and evaluation of the newly established INF BS degree. Many of the courses taught will be in an online delivery format. Instructors will also be responsible for the creation and development of online and face-to-face courses to be taught by graduate students and other instructors.

   For a complete job description and application procedures, visit:
   http://albany.interviewexchange.com/jobofferdetails.jsp?JOBID=44924

   Questions regarding the position may be addressed to evergreen2013@albany.edu.

   For a snapshot of CCI student activities, please visit the CCI Student Center blog at: http://ualbanycci.com/.

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University at Albany

Program Proposal BS in Informatics

Appendix 6

Transfer Articulation agreements

UNIVERSITY AT ALBANY
State University of New York

TRANSFER ARTICULATION AGREEMENT

INFORMATICS PROGRAM

HUDSON VALLEY COMMUNITY COLLEGE
AND
THE UNIVERSITY AT ALBANY

This transfer articulation agreement is the result of thoughtful cooperation between the faculty and staff of the University at Albany and Hudson Valley Community College.

Academic programs at Hudson Valley Community College provide strong preparation for and ready access to baccalaureate programs at the University at Albany. Therefore, we have developed an agreement with Hudson Valley Community College that will provide the maximum number of transfer credits applied to the Informatics degree program at the University at Albany. We strongly believe that many students in a two-year program of study at Hudson Valley Community College will benefit from the information, guidance and transfer course equivalencies this agreement provides.

The University at Albany is delighted to continue our longstanding, close relationship with Hudson Valley Community College and we are proud to offer each student the opportunity to earn both an Associate's degree and baccalaureate degree within the State University of New York system.

Susan D. Phillips, Ph.D.
Provost and Vice President for Academic Affairs
University at Albany
State University of New York

UNIVERSITY AT ALBANY
State University of New York

The attached University at Albany and Hudson Valley Community College transfer equivalency table represents the required and suggested elective courses that are similar and parallel to those completed by degree-seeking students at the University at Albany. Hudson Valley Community College students who complete the program as outlined in these arrays will be awarded full transfer credit and afforded the opportunity to complete the Bachelor's degree in Informatics in four additional semesters of study at UAlbany.

Students completing the Computing and Information Systems A.S. degree at Hudson Valley Community College will be fully admitted to the Informatics major at UAlbany.

Hudson Valley Community College students pursuing programs that do not conform to those specified herein will be considered for admission on an individual basis. The transfer course equivalency table in this agreement will be amended or expanded with mutual consent through an annual review by both institutions.

Approved for
Hudson Valley Community College
State University of New York

_____

Carolyn G. Curtis, Ph.D.

Vice President of Academic Affairs
Title

Date: _____

Approved for
University at Albany
State University of New York

_____

Jeanette Altarriba, Ph.D.

Vice Provost and Dean for Undergraduate Education
Title

Date: April 2, 2014

SUNY TRANSFER COURSE EQUIVALENCY TABLE

Hudson Valley Community College (30084) AS in Computer Information Systems				
Course #	**Course Title**	**Major or Pathway**	**SUNY Gen Ed**	**Credits Granted**
CISS 110R	Programming and Logic 1			4
CISS 111R	Programming and Logic 11 – Data Structures			4
CISS 120E	Networking 1 – Intro to Data Communication			3
CISS 220E	Intro to Web Design and Development			3
CISS 250	Database Management Systems			4
CISS 251E	Structured Query Language			2
ENGL 101R	English Composition I		X	3
ENGL 102R	English Composition II		X	3
MATH 135	Statistics (or BADM 220)		X	4
PSYC 260	Practical Research Methods		X	3
	American (US) History Gen Ed Elective		X	3
	Arts Gen Ed Elective		X	3
	Foreign Language Gen Ed Elective		X	3
	Humanities Elective		X	3
	Math Elective (Math 150, 160 or 180)			3
	Natural Science Gen Ed Elective		X	4
	Social Science Gen Ed Elective		X	3
	Restricted Elective			3
	Restricted Elective			3
	Restricted Elective			3

UNIVERSITY AT ALBANY
State University of New York

TRANSFER ARTICULATION AGREEMENT

INFORMATICS PROGRAM

FULTON-MONTGOMERY COMMUNITY COLLEGE
AND
THE UNIVERSITY AT ALBANY

This transfer articulation agreement is the result of thoughtful cooperation between the faculty and staff of the University at Albany and Fulton-Montgomery Community College.

Academic programs at Fulton-Montgomery Community College provide strong preparation for and ready access to baccalaureate programs at the University at Albany. Therefore, we have developed an agreement with Fulton-Montgomery Community College that will provide the maximum number of transfer credits applied to the Informatics degree program at the University at Albany. We strongly believe that many students in a two-year program of study at Fulton-Montgomery Community College will benefit from the information, guidance and transfer course equivalencies this agreement provides.

The University at Albany is delighted to continue our longstanding, close relationship with Fulton-Montgomery Community College and we are proud to offer each student the opportunity to earn both an Associate's degree and baccalaureate degree within the State University of New York system.

Susan D. Phillips, Ph.D.
Provost and Vice President for Academic Affairs
University at Albany
State University of New York

UNIVERSITY AT ALBANY
State University of New York

The attached University at Albany and Fulton-Montgomery Community College transfer equivalency table represents the required and suggested elective courses that are similar and parallel to those completed by degree-seeking students at the University at Albany. Fulton-Montgomery Community College students who complete the program as outlined in these arrays will be awarded full transfer credit and afforded the opportunity to complete the Bachelor's degree in Informatics in four additional semesters of study at UAlbany.

Students completing the Computing and Information Systems A.A.S. degree at Fulton-Montgomery Community College will be fully admitted to the Informatics major at UAlbany.

Fulton-Montgomery Community College students pursuing programs that do not conform to those specified herein will be considered for admission on an individual basis. The transfer course equivalency table in this agreement will be amended or expanded with mutual consent through an annual review by both institutions.

Approved for
Fulton-Montgomery Community College
State University of New York

_____

Greg Truckenmiller, Ph.D.

Provost & Vice President of Academic Affairs
Title

Date: _____

Approved for
University at Albany
State University of New York

_____

Jeanette Altarriba, Ph.D.

Vice Provost & Dean for Undergraduate Education
Title

Date: April 2, 2014

SUNY TRANSFER COURSE EQUIVALENCY TABLE

Fulton-Montgomery Community College AAS in Computer Information Systems					University at Albany BS in Informatics				
Course #	**Course Title**	**Major or Pathway**	**SUNY Gen Ed**	**Credits Granted**	**Course #**	**Equivalent Course Title**	**SUNY Gen Ed**	**Major or Pathway**	**Credits Accepted**
CIS 110	Spreadsheets & Databases - Professionals	X		3	ICSI 010	Computer Science Elective			3
CIS 115	Introduction to Programming Logic	X		3	ICSI 010	Computer Science Elective			3
CIS 120	Computer Science 1	X		3	ICSI 105	Computing and Information		X	3
CIS 160	Database Design and Programming	X		3	CSI 010	Computer Science Elective			3
CIS 170	Web Site Development	X		3	IINF 201	Introduction to Web Technologies			3
CIS 220	Computer Science 11	X		3	IINF 010	Informatics elective			3
CIS 230	Internet Programming	X		3	IINF 010	Informatics elective			3
CIS 240	Hardware Concepts	X		3	ICSI 010	Computer Science elective		X	3
CIS 241	Networking Concepts	X		3	IINF 203	Introduction to Networks and Systems		X	3
CIS 250	Project Management	X		3	IINF 305	Digital Project Management		X	3
CIS 289/IN 292	Prof Development Seminar or Internship	X		2	APLEO	General Elective			2
COT 131	Cisco Networking 1	X		4	APLEO	Applied Elective			4
ENG 103	English I		X	3	AENG 010z	English Elective	X		3
ENG 104	English II		X	3	AENG 121Z	Reading Literature	X		3
ENG 132	Speech (Restricted Elective)		X	3	ACOM 203	Speech Communication	X		3
MAT 125	Statistics		X	3	AMAT 108	Elementary Statistics	X		3
MAT 128	Discrete Math	X		4	AMAT 010	Math elective for the major		X	4
	Natural Science Gen Ed Elective		X	3	ABIO 010	Natural Science Gen Ed Elective	X		3
	Physical Education			2	DPEC 010	Elective Course			2
	Social Science Gen Ed Elective		X	3	ASOC 010	Social Science Gen Ed Elective	X		3
					Additional Required and Elective Courses for the Major at UAlbany				
					IINF 200	Research Methodologies		X	3
					IINF 202	Introduction to Data and Databases		X	3
					IINF 100	Information in the 21st Century (Challenges)	X	X	3
					IINF 301	Emerging Trends in Information &Technology		X	3
					IINF 499	Senior Seminar		X	3
						INF Concentration Course		X	3
						INF Concentration Course		X	3
						INF Concentration Course		X	3
						INF Concentration Course		X	3
						INF Experiential		X	3
						INF Experiential		X	3
						INF Experiential		X	3
					AHIS 010	American (US) History Gen Ed Elective	X		3
					AART 010	Arts Gen Ed Elective	X		3
					ASPN 010	Foreign Language Gen Ed Elective	X		3
						International Perspectives Gen Ed Elective	X		3
						Elective, upper level in the major		X	3
						Elective, Liberal Arts, upper level			3
						Elective, Liberal Arts, upper level			3
						Elective, Liberal Arts, upper level			3
			Total Credits:	60				**Total Credits Transferred:**	60
								Course Credits Needed for Graduation after Transfer:	60

University at Albany

Program Proposal BS in Informatics

Appendix 7

Distance Education Format Proposal (Form 4)

SUNY The State University of New York

Distance Education Format Proposal For A Proposed or Registered Program

Form 4

When a new or existing program is designed for a distance education format, which enables students to complete 50% or more of the course requirements at a distance, a campus Chief Executive Officer or Chief Academic Officer should submit a signed cover letter and this completed form to the SUNY Provost at program.review@suny.edu. According to MSCHE, the 50% standard includes only courses offered in their entirety via distance education, not courses utilizing mixed delivery methods. Also, MSCHE requires that the first two programs for which 50% or more is offered through distance education be submitted for Commission review and prior approval of a substantive change.

- All campuses must complete the following sections: Contact and Program Information, Section 1: Enrollment, Section 2: Program Information, and Part B: Program Specific Issues.

- Part A must be completed if the proposing campus has not previously submitted this form with a completed Part A: Institution-wide Issues, or has made significant changes to its institution-wide distance education operations since last completing Part A. This applies even if the institution has programs registered to be delivered at a distance.

Contact and Program Information Institution's 6-digit SED Code: 210500
Institution Name: University at Albany, State University of New York
Institution Address: 1400 Washington Avenue, Albany, NY 12222
NYS Department of Labor/Regents Region: Capital Region
CEO or Designee: Susan D Phillips, Ph.D. Provost and Vice President for Academic Affairs
CEO/Designee Signature: Susan D Phillips Date:

Chief Executive Officer or Designee Approval: Signature affirms that the proposal has met all applicable campus administrative and shared governance procedures for consultation, and the institution's commitment to support the proposed program.

Distance Education Contact Person Name and Title Suzanne K Freed Asst Vice Provost for Undergraduate Education	
Telephone: 518-242-6046	Email: sfreed@albany.edu
Program Title: Informatics	SED Program Code (for existing programs): 0702
Degree or Certificate Award: Bachelor of Science	HEGIS Code: 11.0104

Section 1: Enrollment

Anticipated enrollment in distance program:

Initial Year: 10	Maximum by Year 3: 30

Section 2: Program Information

a) *Term length* (in weeks) for the distance program: 15 weeks

b) Is this the same as term length for classroom program? [ ] No [X] Yes

c) How much "*instructional time*" is required per week per credit for a distance course in this program? (Do not include time spent on activities that would be done outside "class time," such as research, writing assignments, or chat rooms.) ***NOTE: See SUNY policy on credit/contact hours and SED guidance.***

The online classes are designed to be equivalent in terms of instructional time and total material covered to the face-to-face classes, which follow SED guidelines of 150 minutes/week for 15 weeks.

d) What proportion or percentage of the program will be offered in Distance Education format? Will students be able to complete 100 percent of the program online? If not, what proportion will be able to be completed online?

It is anticipated that students opting for the Information Technology concentration will be able to complete 100% of the program online. Only students opting for this concentration will be offered the entire major online.

e) What is the maximum number of students who would be enrolled in an online course section?

Class sizes will range from 25-100 depending on the resources associated with the class and the mode of instruction. Equivalent resources will be allocated to classes regardless of in the instruction environment (face-to-face/on-line).

Part A: Institution-wide Issues: Submit Part A only for the **first** Distance Education program proposed by your institution using this form. SUNY and the State Education Department will keep this in a master file so that your institution will not need to resubmit it for each new proposed online program, **unless there are significant changes, such as a new platform**.

I. ORGANIZATIONAL COMMITMENT

a) Describe your institution's planning process for Distance Education, including how the need for distance access was identified, the nature and size of the intended audiences, and the provisions for serving those audiences, including how each student's identity will be verified.

The University at Albany's planning process for Distance Education is both imbedded in the program planning process and supported by institution-wide oversight and strategic planning. While distance

education has been part of the University's offerings since the mid-1990s, the University's ***Strategic Plan of 2009*** identified as a goal expansion of online and other distance education to support the learning of traditional students as well as to reach new populations. In 2012-13, a Task Force on Online Teaching and Learning created a "Framework" for moving forward as well as assessing the current quality of these endeavors. Since then, a University Steering Committee has been guiding strategic distance education efforts, with membership from each academic unit and administrative supporting work in this area. Most recently, the University has appointed an Associate Provost for Online Learning to provide strategic direction and coordination to these efforts.

Like all academic program planning at the University, the department, school, or college offering the program plays the central role in identifying the need and appropriate audience for its academic offerings, based on discipline-specific knowledge and environmental scanning. This assessment is a required part of the academic program approval process at the University.

Section 496(a)(4)(B) of the HEA, as amended by the HEOA, and effective August 14, 2008, provides that an accrediting agency must require an institution that offers distance education to have processes through which the institution establishes that the student who registers in a distance education or correspondence education course or program is the same student who participates in and completes the program and receives the academic credit. Consistent with this legislation, all UAlbany students who participate in such classes use secure login procedures for their online courses via the student's MyUAlbany unique ID and password.

b) Describe your institution's resources for distance learning programs and its student and technical support services to ensure their effectiveness. What course management system does your institution use?

UAlbany uses Blackboard Learn to host online courses for all programs. The campus provides technical and instructional support for the faculty and students through professional units in both Information Technology Resources (ITS) and Academic Affairs.

The Information Technology Resources staff manages the Blackboard service and serves as technical support for the faculty and students. The office is staffed M-F 9:00 – 5:00 for phone, walk-in, and web support. When the office is closed, faculty and students are able to access online support resources, including instructions, FAQ, and tutorials as well as submit inquiries and help requests by phone and via the web.

Online Technical Support Resources:

- ITS Service Desk
  Both phone messages and online requests are logged electronically using the service desk software, FootPrints. This software allows the HelpDesk staff to respond to requests the following business day and maintains a record of communication and resolution of technical support incidents.
  http://www.albany.edu/its/currentfaculty.html

- AskIT Wiki
  Self-help resources are available through the AskIT wiki which provides procedural and tutorial assistance with the full range of UAlbany Information Technology Services.
  https://wiki.albany.edu/display/public/askit/Information+Technology+Services+askIT

- ITS Service Points
  Several offices within IT provide support for the numerous technology services available to faculty, staff, and students.
  https://wiki.albany.edu/display/public/askit/Contact+Information+for+ITS+Service+Desk

c) Describe how the institution trains faculty and supports them in developing and teaching online courses, including the pedagogical and communication strategies to function effectively. Describe the qualifications of those who train and/or assist faculty, or are otherwise responsible for online education.

The Online Course Development program (see http://www.albany.edu/its/34097.php) facilitates faculty and course development activities. The program is conducted by the staff in Faculty Technology Resources, including Instructional Developers who hold Masters Degrees in Instructional Design/Technology, Communication, and Library Sciences and have extensive experience facilitating course development and supporting programs. This program is available in both a face-to-face and online format.

d) If your institution uses courses or academic support services from *another provider*, describe the process used (with faculty participation) to evaluate their quality, academic rigor, and suitability for the award of college credit and a degree or certificate. N/A

e) Does your institution have a clear *policy on ownership of course materials* developed for its distance education courses? How is this policy shared with faculty and staff? *NOTE: You may refer to SUNY's statement on copyright and faculty ownership of instructional content, and/or faculty contract provisions.*

UAlbany adheres to SUNY's policy on course/materials ownership. However, contractual arrangements are devised in many cases which dictate specifics about faculty ownership with permission granted for the university to use the course/materials for future offerings.

II. LEARNER SUPPORT

a) Describe how your institution provides distance students with *clear information* on:

- **Program completion requirements**
- **The nature of the learning experience**
- **Any specific student background, knowledge, or technical skills needed**
- **Expectations of student participation and learning**
- **The nature of interactions among faculty and students in the courses.**
- **Any technical equipment or software required or recommended.**

Equivalent services are made available to students regardless of instructional format. Course syllabi outline the student expectations and learning outcomes, as well as the expected interaction with the faculty, and any equipment or software required or recommended. Academic advisors will work with students (face-to-face or online) to review requirements and address and clarify student behaviors necessary for academic success. Faculty development offerings and instructional design guidelines emphasize the importance of interaction between students and instructors and typical online courses assume a high level of instructor-student interaction.

Online students have access to the University degree audit system. DARs provides student with a clear listing of program requirements, and tracks which the student has completed or has yet to complete.

All online courses offered through Blackboard provide general orientation materials designed to provide guidance on using the system to succeed in online courses. The standard for each course is to include a Course Information module that details expectations for students and instructors, around course-specific requirements and expectations around interactions. ITS also provides technology requirements. With faculty consent access to online course syllabi and other materials are automatically made available to students two weeks before the start of classes to ensure that students have adequate time to prepare and to get clarification where needed.

b) Describe how your institution provides distance learners with adequate *academic and administrative support*, including academic advisement, technical support, library and information services, and other student support services normally available on campus. Do program materials clearly define how students can access these support services?

All UAlbany students have a personal account through MyUAlbany. The University uses this online portal to provide information and support to all students, concerning advising, finances, access to library resources and email.

Each of these services is available to distance education students remotely, using various forms of technology depending on the student's needs.

Technical Support is provided to faculty, students, and staff by the Information Technology Services (ITS) HelpDesk team. The HelpDesk provides support in person, by phone, and via online channels (email, web form, remote assistance). The HelpDesk is staffed 8:30 – 5:00, M-F.

When the HelpDesk is closed students are able to access online support resources, including instructions, FAQ, and tutorials as well as submit inquiries and help requests by phone and via the web.

Online Technical Support Resources:

- ITS Service Desk
  Both phone messages and online requests are logged electronically using the service desk software, FootPrints. This software allows the HelpDesk staff to respond to requests the following business day and maintains a record of communication and resolution of technical support incidents.
  http://www.albany.edu/its/currentstudent.html

- AskIT Wiki
  Self-help resources are available through the AskIT wiki which provides procedural and tutorial assistance with the full range of UAlbany Information Technology Services.
  https://wiki.albany.edu/display/public/askit/Information+Technology+Services+askIT

- ITS Service Points
  Several offices within IT provide support for the numerous technology services available to faculty, staff, and students.
  https://wiki.albany.edu/display/public/askit/Contact+Information+for+ITS+Service+Desk

c) Describe how administrative processes such as admissions and registration are made available to distance students, and how program materials inform students how to access these services.

Applications and information concerning admission is fully available online at Albany.edu/admissions. Once admitted, the UAlbany Welcome website provides all necessary follow up information for students to prepare for classes and student life.

Students register for UAlbany online courses through their MyUAlbany online portal. Students who choose to register at other SUNY institutions to complete general education or other requirements will interact with the UA Registrar.

The Informatics Program is also creating an online community within Blackboard to provide information about accessing University resources.

The UAlbany Online Teaching and Learning subcommittee on Student Services works to monitor availability of services and to facilitate additional changes as necessary.

d) What *orientation* opportunities and resources are available for students of distance learning?

The Office of New Student Programs invites all students to participate in the on-campus Orientations for new students. Information from the Orientation will also be available on-line for Distance Education learners who cannot make it to campus. This information will include academic and course related information as well as information about resources available to students to help them be successful UAlbany students. Distance Education Learners who have questions about UAlbany resources are encouraged to contact the Office of New Student Programs at 518-442-5509 or orientation@albany.edu.

Part B: Program-Specific Issues: Submit Part B for each new request to add Distance Education Format to a proposed or registered program.

III. LEARNING DESIGN

a) How does your institution ensure that the *same academic standards and requirements* are applied to the program on campus and through distance learning? If the curriculum in the Distance Education program differs from that of the on-ground program, please identify the differences.

The curriculum for the Informatics major can be pursued in either environment, distance or face-to-face, on campus. However, of the seven available concentrations in this major, only one is offered fully on-line. Because each online course has a face-to-face counterpart, the same standards and requirements are seamlessly applied to both. Additionally, appropriate assessment activities are designed to be equivalent for both environments.

b) Are the courses that make up the distance learning program offered in a sequence or configuration that allows *timely completion of requirements*?

Yes, the program materials clearly outline the sequencing, and courses are offered throughout the year to allow for timely completion.

c) How do faculty and others ensure that *the technological tools* used in the program are appropriate for the content and intended learning outcomes?

This is addressed in the course design process and is discussed among the faculty members teaching each individual course in the program. The Informatics program maintains a repository of tutorials explaining the use of technological tools instructors are encouraged to use in the classroom.

d) How does the program provide for appropriate and flexible interaction between faculty and students, and among students?

Blackboard provides the tools for threaded discussions among class participants, as well as for confidential interaction between faculty and students. Additional collaboration tools may also be introduced into courses at the discretion of the online instructor.

e) How do faculty teaching online courses verify that the student who registers in a distance education course or program is the same student who participates in and completes the course or program and receives the academic credit?

Student identities are verified by use of login to the Learning Management System with the student's MyUAlbany unique ID and password.

Additionally the Informatics Department faculty currently uses Safe Assign and Turn It In for academic integrity verification.

IV. OUTCOMES AND ASSESSMENT

a) Distance learning programs are expected to produce the *same learning outcomes* as comparable classroom-based programs. How are these learning outcomes identified – in terms of knowledge, skills, or credentials – in course and program materials?

The new program proposal requires that the student learning outcomes be identified. This specific proposal includes which classes will address each learning outcome.

b) Describe how the *means chosen for assessing student learning* in this program are appropriate to the content, learning design, technologies, and characteristics of the learners.

The assessment of student learning in online environments is designed to be equivalent to assessing the student in face-to-face environments. With assistance from the University's Faculty Technology Resource unit, faculty are supported to reflect on course content, technologies, student needs and overarching goals and specific objective and to design appropriate formative and summative assessments to understand, measure, and improved online student learning. All exercises, labs, projects, and other activities can be successfully completed and assessed online. Experiential opportunity placements will be determined based on individual student needs.

V. PROGRAM EVALUATION

a) What process is in place to monitor and *evaluate the effectiveness* of this particular distance education program on a regular basis?

Each academic program develops a self-study and undergoes an external review process on a seven-year cycle. In addition to other important criteria, program review self-study documents describe past, current, and future assessment activities.

Additionally, a program self-study review will be performed annually.

At a minimum of once/semester, student course evaluations will be administered. Periodic peer reviews of individual course content and syllabi will be conducted.

b) How will the evaluation results will be used for *continuous program improvement*?

Student evaluations are shared with the course instructor who in turn will act on the results. All course evaluations and program reviews involve all members of a program at all levels. Suggestions and feedback will be continuously reviewed and acted on. Faculty teaching sections of the same course will confer and share course content. Faculty will be encouraged and supported in participating in professional development opportunities involving contemporary online teaching methods.

c) How will the evaluation process assure that the *program results in learning outcomes appropriate to the rigor and breadth* of the college degree or certificate awarded?

Curriculum mapping (as part of the regular program self-study review process) will assure that instruction aligns with desired goals and learning outcomes.

VI. STUDENTS RESIDING OUTSIDE NEW YORK STATE

SUNY programs must comply with all "authorization to operate" regulations that are in place in other U.S. states where the institution has enrolled students or is otherwise active, based on each state's definitions.

a) What processes are in place to monitor the U.S. state of residency of students enrolled in any distance education course in this program while residing in their home state?

Distance-learning students will be flagged in our integrated administrative system. This will allow regular querying so that we can identify any out of state students who participate from their home state. We can then seek approval from their home state if necessary.

b) Federal regulations require institutions delivering courses by distance education to provide students or prospective students with contact information for filing complaints with the state approval or licensing entity in the student's state of residency and any other relevant state official or agency that would appropriately handle a student's complaint. What is the URL on your institution's website where contact information for filing complaints for students in this program is posted?

www.albany.edu/ir/rtk/

University at Albany
Program Proposal

BS in Informatics

Appendix 8

Sample Program Schedule and Curriculum for:

BS in Informatics with a concentration in

a) Interactive User Experience
b) Cybersecurity
c) Computer Networking
d) Social Media
e) Data Analytics
f) Software Development
g) Information Technology

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Computer Networking Concentration)**

Calendar Type	Semester	Quarter	Trimester	Other
	X			

SUNY Transfer Path Name (if one exists) **N/A** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			X	X						
IINF 100 Information in the 21st Century - R	3			X	X						
Natural Science Gen Ed- RE	3	NS	3	X							
Arts Gen Ed - RE	3	AR	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				X						IINF 100
IINF 201 Intro to Web Technology - R	3				X						IINF 100
AMAT 108 Statistics - R	3	M	3	X	X						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				X						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			X	X		X	X			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	X	X						
Foreign Language Gen Ed - RE	3	FL	3	X							
International Perspectives Gen Ed - RE	3	OW	3	X							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				X						ICSI 105
Social Science Gen Ed- RE	3	SS	3	X							
US Historical Perspectives - RE	3	AH	3	X							
Humanities- RE	3	H	3	X							
Elective - FE	3					X					
Term Totals	**15**	**3**	**9**	**9**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				X		X	X			IINF 201 and 202
IINF 303 - Intermediate Networking - R	3				X		X	X			IINF 203
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X		X					
Elective - FE	3					X					
Term Totals	**15**			**6**	**6**	**6**	**6**	**6**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 304 - Intermediate Hardware and Operating Systems - R	3				X		X	X			IINF 203
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X		x	Informatics Junior/Senior
Upper Division Elective, Liberal Arts - RE	3			X			X				
Upper division elective - RE	3						X				
Upper division elective- RE	3						X				
Term Totals	**15**			**3**	**6**		**15**	**6**		**1**	**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Computer Networking elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X			Informatics juniors/seniors only
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X							
Upper Division Elective - RE	3					X	X				
Term Totals	**15**			**6**	**6**	**3**	**9**	**6**			**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Computer Networking elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course	3				X		X	X			Informatics juniors/seniors only
INF 499W Senior Seminar in Informatics - R	3			X	X		X	X			Informatics seniors only
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3					X	X				
Term Totals	**15**			**6**	**9**	**3**	**12**	**9**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**9**	**30**	**60**	**54**	**15**	**45**	**30**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**
Mathematics (M)	**2**	**American History (AH)**	**1**
Natural Sciences (NS)	**1**	**Western Civilization (WC)**	
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**
Humanities (H)	**1**	**Foreign Language (FL)**	**1**

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Cybersecurity Concentration)**

	Semester	Quarter	Trimester	Other
Calendar Type	**X**			

SUNY Transfer Path Name (if one exists) **N/A** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			X	X						
IINF 100 Information in the 21st Century - R	3			X	X						
Natural Science Gen Ed- RE	3	NS	3	X							
Arts Gen Ed - RE	3	AR	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				X						IINF 100
IINF 201 Intro to Web Technology - R	3				X						IINF 100
AMAT 108 Statistics - R	3	M	3	X	X						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				X						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			X	X		X	X			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	X	X						
Foreign Language Gen Ed - RE	3	FL	3	X							
International Perspectives Gen Ed - RE	3	OW	3	X							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				X						ICSI 105
Social Science Gen Ed- RE	3	SS	3	X							
US Historical Perspectives - RE	3	AH	3	X							
Humanities - RE	3	H	3	X							
Elective, Liberal Arts - RE	3			X		X					
Term Totals	**15**	**3**	**9**	**12**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				X		X	X			IINF 201 and 202
ICSI 124X Computer Security Basics - R	3				X						
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3						X				
Upper division elective - RE	3						X				
Term Totals	**15**			**3**	**6**		**9**	**3**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF306 - Information Security & Assurance - R	3				X		X	X			IINF 202
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X		x	Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3						X				
Upper division elective- RE	3						X				
Term Totals	**15**			**3**	**6**		**12**	**6**		**1**	**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Cybersecurity elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X			Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X							
Upper Division Elective - RE	3					X	X				
Term Totals	**15**			**6**	**6**	**3**	**9**	**6**			**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Cybersecurity elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course	3				X		X	X			Informatics Junior/Senior
INF 499W Senior Seminar in Informatics - R	3			X	X		X	X			Informatics seniors only
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3					X	X				
Term Totals	**15**			**6**	**9**	**3**	**12**	**9**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**9**	**30**	**60**	**54**	**9**	**45**	**27**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**	
Mathematics (M)	**2**	**American History (AH)**	**1**	
Natural Sciences (NS)	**1**	**Western Civilization (WC)**		
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**	
Humanities (H)	**1**	**Foreign Language (FL)**	**1**	

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Data Analytics Concentration)**

	Semester	Quarter	Trimester	Other
Calendar Type	**X**			

SUNY Transfer Path Name (if one exists) **N/A** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			X	X						
IINF 100 Information in the 21st Century - R	3			X	X						
Natural Science Gen Ed- RE	3	NS	3	X							
Arts Gen Ed - RE	3	AR	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				X						IINF 100
IINF 201 Intro to Web Technology - R	3				X						IINF 100
AMAT 108 Statistics - R	3	M	3	X	X						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				X						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			X	X		X	X			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	X	X						
Foreign Language Gen Ed - RE	3	FL	3	X							
International Perspectives Gen Ed - RE	3	OW	3	X							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				X						ICSI 105
Social Science Gen Ed- RE	3	SS	3	X							
US Historical Perspectives - RE	3	AH	3	X							
Humanities - RE	3	H	3	X							
Elective, Liberal Arts - RE	3			X		X					
Term Totals	**15**	**3**	**9**	**12**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				X		X	X			IINF 201 and 202
ICSI 131 - Intro to Data Analytics: Seeking Information in Data with Computation - R	3				X						
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3						X				
Upper division elective - RE	3						X				
Term Totals	**15**			**3**	**6**		**9**	**3**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 300 - Probability and Statistics for Data Analytics - R	3				X		X	X			AMAT 108
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X		x	Informatics Junior/Senior
Liberal Arts elective- RE	3			X							
Upper division elective - RE	3						X				
Upper division elective- RE	3						X				
Term Totals	**15**			**3**	**6**		**12**	**6**		**1**	**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Data Analytics elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X			Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X							
Upper Division Elective - RE	3					X	X				
Term Totals	**15**			**6**	**6**	**3**	**9**	**6**			**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Data Analytics elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course	3				X		X	X			Informatics Junior/Senior
INF 499W Senior Seminar in Informatics - R	3			X	X		X	X			Informatics Seniors only
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3					X	X				
Term Totals	**15**			**6**	**9**	**3**	**12**	**9**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**9**	**30**	**60**	**54**	**9**	**45**	**27**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**
Mathematics (M)	**2**	**American History (AH)**	**1**
Natural Sciences (NS)	**1**	**Western Civilization (WC)**	
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**
Humanities (H)	**1**	**Foreign Language (FL)**	**1**

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Information Technology Concentration)**

	Semester	Quarter	Trimester	Other
Calendar Type	x			

SUNY Transfer Path Name (if one exists) **n/a** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			x	x						
IINF 100 Information in the 21st Century	3			x	x						
Natural Sicence Gen Ed - RE	3	NS	3	x							
Arts Gen Ed - RE	3	AR	3	x							
Elective - RE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				x						IINF 100
IINF 201 Intro to Web Technology - R	3				x						IINF 100
AMAT 108 Statistics - R	3	M	3	x	x						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	x							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				x						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			x	x		x	x			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	x	x						
Foreign Language Gen Ed - RE	3	FL	3	x							
International Perpectives Gen Ed - RE	3	OW	3	x							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				x						ICSI 105
Social Science Gen Ed - RE	3	SS	3	x							
US Historical Perpectives - RE	3	AH	3	x							
Humanities	3	H	3	x							
Elective - RE	3					x					
Term Totals	**15**	**3**	**9**	**9**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				x		x	x			IINF 201 and 202
IINF 302 - Human Computer Interactive Design - R	3				x		x	x			IINF 301
Elective - Liberal Arts - RE	3			x							
Elective - Liberal Arts - RE	3			x		x					
Elective - FE	3					x					
Term Totals	**15**			**6**	**6**	**6**	**6**	**6**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 303 - Intermediate Networking - R	3				x		x	x			IINF 203
Elective, Liberal Arts - RE	3			x							
Upper Division Elective, Liberal Arts - RE	3			x			x				
Upper Division Elective - RE	3						x				
Upper Division Elective - RE	3						3				
Term Totals	**15**			**6**	**3**		**12**	**3**			**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 306 - Information Security & Assurance - R	3				x		x	x			IINF 202
IINF 469 - Experiential Learning Course - R	9				x		x	x		x	Informatics Junior/Senior
Elective, Liberal Arts - RE	3			x							
Term Totals	**15**			**3**	**12**		**12**	**12**		**1**	**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 308 - Programming for Informatics - R	3				x		x	x			ICSI 105 and IINF 100
IINF 499W Senior Seminar in Informatics - R	3			x	x		x	x			Informatics Seniors only
Elective, Liberal Arts - RE	3			3							
Upper division elective - RE	3					x	x				
Upper division elective - RE	3					x	x				
Term Totals	**15**			**6**	**6**	**6**	**12**	**6**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**8**	**30**	**60**	**54**	**15**	**45**	**30**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**	
Mathematics (M)	**2**	**American History (AH)**	**1**	
Natural Sciences (NS)	**1**	**Western Civilization (WC)**		
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**	
Humanities (H)		**Foreign Language (FL)**	**1**	

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Social Media Concentration)**

	Semester	Quarter	Trimester	Other
Calendar Type	**X**			

SUNY Transfer Path Name (if one exists) **N/A** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			X	X						
IINF 100 Information in the 21st Century - R	3			X	X						
Natural Science Gen Ed- RE	3	NS	3	X							
Arts Gen Ed - RE	3	AR	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				X						IINF 100
IINF 201 Intro to Web Technology - R	3				X						IINF 100
AMAT 108 Statistics - R	3	M	3	X	X						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				X						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			X	X		X	X			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	X	X						
Foreign Language Gen Ed - RE	3	FL	3	X							
International Perspectives Gen Ed - RE	3	OW	3	X							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				X						ICSI 105
Social Science Gen Ed- RE	3	SS	3	X							
US Historical Perspectives - RE	3	AH	3	X							
Humanities - RE	3	H	3	X							
Elective - FE	3					X					
Term Totals	**15**	**3**	**9**	**9**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				X		X	X			IINF 201 and 202
ICSI 131 - Intro to Data Analytics: Seeking Information in Data with Computation - R	3				X						
Upper Division Elective, Liberal Arts - RE	3			X			X				
Elective, Liberal Arts - RE	3			X		X					
Upper division elective - RE	3						X				
Term Totals	**15**			**6**	**6**	**3**	**9**	**3**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 307 - Current Topics in Social Media - R	3				X		X	X			IINF 301
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X		x	Informatics Junior/Senior
Upper Division Elective, Liberal Arts - RE	3			X			X				
Upper division elective - RE	3						X				
Upper division elective- RE	3						X				
Term Totals	**15**			**3**	**6**		**15**	**6**		**1**	**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Social Media elective - RE	3				X						
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X			Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X							
Upper Division Elective - RE	3					X	X				
Term Totals	**15**			**6**	**6**	**3**	**6**	**3**			**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Social Media upper level elective - RE	3				X		X	X			
INF 465/466/467/468 or EAPS 487: Experiential learning course	3				X		X	X			Informatics Junior/Senior
INF 499W Senior Seminar in Informatics - R	3			X	X		X	X			Informatics Seniors only
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3					X	X				
Term Totals	**15**			**6**	**9**	**3**	**12**	**9**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**9**	**30**	**60**	**54**	**12**	**45**	**24**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**
Mathematics (M)	**2**	**American History (AH)**	**1**
Natural Sciences (NS)	**1**	**Western Civilization (WC)**	
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**
Humanities (H)	**1**	**Foreign Language (FL)**	**1**

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Software Development Concentration)**

Calendar Type	Semester	Quarter	Trimester	Other
	X			

SUNY Transfer Path Name (if one exists) **N/A** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			X	X						
IINF 100 Information in the 21st Century - R	3			X	X						
Natural Science Gen Ed- RE	3	NS	3	X							
Arts Gen Ed - RE	3	AR	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				X						IINF 100
IINF 201 Intro to Web Technology - R	3				X						IINF 100
AMAT 108 Statistics - R	3	M	3	X	X						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				X						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			X	X		X	X			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	X	X						
Foreign Language Gen Ed - RE	3	FL	3	X							
International Perspectives Gen Ed - RE	3	OW	3	X							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				X						ICSI 105
Social Science Gen Ed- RE	3	SS	3	X							
US Historical Perspectives - RE	3	AH	3	X							
Humanities - RE	3	H	3	X							
Elective - FE	3					X					
Term Totals	**15**	**3**	**9**	**9**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				X		X	X			IINF 201 and 202
ICSI 201 - Introduction to Computer Science - R	3				X						
Upper Division Elective, Liberal Arts - RE	3			X			X				
Elective, Liberal Arts - RE	3			X		X					
Upper division elective- RE	3						X				
Term Totals	**15**			**6**	**6**	**3**	**9**	**3**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 310 - Data Structures - R	3				X		X	X			ICSI 201
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X		x	Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3						X				
Upper division elective- RE	3						X				
Term Totals	**15**			**3**	**6**		**12**	**6**		**1**	**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 455 - Prevention Strategies in Cyber-security or ICSI 405 Object Oriented Programming Principles and Practice - RE	3				X		X	X			IINF 306/ICSI 310
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X			Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X							
Upper Division Elective - RE	3					X	X				
Term Totals	**15**			**6**	**6**	**3**	**9**	**6**			**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 418Y - Software Engineering - R	3				X		X	X			ICSI 405
INF 465/466/467/468 or EAPS 487: Experiential learning course	3				X		X	X			Informatics Junior/Senior
INF 499W Senior Seminar in Informatics - R	3			X	X		X	X			Informatics Seniors only
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3					X	X				
Term Totals	**15**			**6**	**9**	**3**	**12**	**9**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**9**	**30**	**60**	**54**	**12**	**45**	**27**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**	
Mathematics (M)	**2**	**American History (AH)**	**1**	
Natural Sciences (NS)	**1**	**Western Civilization (WC)**		
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**	
Humanities (H)	**1**	**Foreign Language (FL)**	**1**	

SUNY Undergraduate Sample Program Schedule

Campus Name	**University at Albany, State University of New York**
Program/Track Title and Award	**BS in Informatics (Interactive User Experience Concentration)**

Calendar Type	Semester	Quarter	Trimester	Other
	X			

SUNY Transfer Path Name (if one exists) **N/A** **<----- Use Dropdown Arrow.**

Use the table to show **how a typical student may progress through the program. Check all columns that apply to a course or enter credits where applicable.**

KEY **Course Type: Required (R), Restricted Elective (RE), Free Elective (FE). Course Credits: Number of Credits for individual course (Enter number.) GER Area: SUNY General Education Requirement Area (Enter Area Abbreviation from the drop-down menu.) GER Credits: (Enter number of course credits.) LAS: Liberal Arts & Sciences Credits (Enter X if course is an LAS course.) Major: Major requirement (Enter X.) TPath: SUNY Transfer Path Major & Cognate Courses (Enter X.) Elective/Other: Electives or courses other than specified categories (Enter X.) Upper Div: Courses intended primarily for juniors and seniors outside of the major (Enter X.) Upper Div Major: Courses intended primarily for juniors and seniors within the major (Enter X.) New: new course (Enter X.) Co/Prerequisite(s): List co/prerequisite(s) for the noted courses. SUNY GER Area Abbreviations (the first five listed in order of their frequency of being required by SUNY campuses): Basic Communication (BC), Math (M), Natural Sciences (NS), Social Science (SS), Humanities (H), American History (AH), The Arts (AR), Other World Civilizations (OW), Western Civilization (WC), Foreign Language (FL).**

The table will automatically update the number of credits, courses and categories in the program totals table at the bottom of the chart.

Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2.

Fall 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
ICSI 105 Computing and Information - R	3			X	X						
IINF 100 Information in the 21st Century - R	3			X	X						
Natural Science Gen Ed- RE	3	NS	3	X							
Arts Gen Ed - RE	3	AR	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**12**	**6**						**(X)**

Spring 1

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 200 Research Methods for Informatics - R	3				X						IINF 100
IINF 201 Intro to Web Technology - R	3				X						IINF 100
AMAT 108 Statistics - R	3	M	3	X	X						
UUNI 110 Writing and Critical Inquiry - R	3	BC	3	X							
Elective - FE	3										
Term Totals	**15**	**2**	**6**	**6**	**9**						**(X)**

Fall 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 202 Introduction to Data and Databases - R	3				X						ICSI 105
IINF 301 Emerging Trends in Information and Tech - R	3			X	X		X	X			IINF 100
AMAT 101, 104, 106 or 112 (math elective) - RE	3	M	3	X	X						
Foreign Language Gen Ed - RE	3	FL	3	X							
International Perspectives Gen Ed - RE	3	OW	3	X							
Term Totals	**15**	**3**	**9**	**12**	**9**		**3**	**3**			**(X)**

Spring 2

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 203 Introduction to Networks and Systems - R	3				X						ICSI 105
Social Science Gen Ed- RE	3	SS	3	X							
US Historical Perspectives - RE	3	AH	3	X							
Humanities - RE	3	H	3	X							
Elective, Liberal Arts - RE	3			X		X					
Term Totals	**15**	**3**	**9**	**12**	**3**	**3**					**(X)**

Fall 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 305 Digital Project Management - R	3				X		X	X			IINF 201 and 202
IINF 302 - Human-Computer Interactive Design - R	3				X		X	X			IINF 301
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3						X				
Upper division elective - RE	3						X				
Term Totals	**15**			**3**	**6**		**12**	**6**			**(X)**

Spring 3

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
IINF 362 Intermediate Interactive Design - R	3				X		X	X			I CSI 101, 105, 110, or 201, I INF 201
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X		x	Informatics Junior/Senior
Upper Division Elective, Liberal Arts - RE	3			X			X				
Upper division elective - RE	3						X				
Upper division elective- RE	3						X				
Term Totals	**15**			**3**	**6**		**15**	**6**		**1**	**(X)**

Fall 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Interactive User Experience elective - R	3				X						
INF 465/466/467/468 or EAPS 487: Experiential learning course - R	3				X		X	X			Informatics Junior/Senior
Elective, Liberal Arts - RE	3			X							
Elective, Liberal Arts - RE	3			X							
Upper Division Elective - RE	3					X	X				
Term Totals	**15**			**6**	**6**	**3**	**6**	**3**			**(X)**

Spring 4

Course Number & Title (& Type)	Number of Credits	GER Area	GE Credits	LAS	Major	Elective/Other	Upper Div	Upper Div Major	TPath	New Course	Co/Prerequisite
Interactive User Experience elective - R	3				X						
INF 465/466/467/468 or EAPS 487: Experiential learning course	3				X		X	X			Informatics Junior/Senior
INF 499W Senior Seminar in Informatics - R	3			X	X		X	X			Informatics Seniors only
Elective, Liberal Arts - RE	3			X							
Upper division elective - RE	3					X	X				
Term Totals	**15**			**6**	**9**	**3**	**9**	**6**			**(X)**

Program Total Summary

Total Credits	SUNY GER Areas	SUNY GER Credits	Liberal Arts & Sciences Credits	Major Credits	Elective and Other Credits	Upper Division Credits	Upper Division Major Credits	Total TPath Courses	New Courses
120	**9**	**30**	**60**	**54**	**9**	**45**	**24**		**1**

GER Area Summary

Basic Communication (BC)	**1**	**The Arts (AR)**	**1**
Mathematics (M)	**2**	**American History (AH)**	**1**
Natural Sciences (NS)	**1**	**Western Civilization (WC)**	
Social Sciences (SS)	**1**	**Other World Civilizations (OW)**	**1**
Humanities (H)	**1**	**Foreign Language (FL)**	**1**