UNIVERSITY AT ALBANY
State University of New York

Office of the Provost and Senior Vice President for Academic Affairs

January 31, 2023

Shadi Shahedipour-Sandvik, Ph.D.
Senior Vice Chancellor for Research, Innovation and Economic Development
And Interim Provost
State University of New York
System Administration
State University Plaza
Albany, NY 12246

Dear Dr. Shahedipour-Sandvik,

On behalf of the faculty at the University at Albany and College of Arts and Sciences, I am pleased to submit our proposal for an update to our Mathematics B.A. registration and the proposal for distance education approval for the same degree.

This proposal has been considered and approved through our campus governance system. Should there be a need for additional information or clarification to facilitate processing, please contact Kaitlyn Beachner at kbeachner@albany.edu.

Thank you for your consideration and assistance.

Sincerely,

Carol Kim, Ph.D.
Provost and Senior Vice President for Academic Affairs

Attachment

c. Dean Jeanette Altarriba, College of Arts and Sciences
Vice Provost & Dean JoAnne Malatesta, Undergraduate Education

University Hall, Suite 308
1400 Washington Avenue, Albany, NY 12222
PH: 518-956-8030 FX: 518-956-8043
www.albany.edu

Program Revision Proposal: Changes to an Existing Program

Form 3A

Version 2016-10-13

SUNY approval and SED registration are required for many changes to registered programs. To request a change to a registered program leading to an undergraduate degree, a graduate degree, or a certificate that does not involve the creation of a new program,[1] a Chief Executive or Chief Academic Officer must submit **a signed cover letter and this completed form** to the SUNY Provost at *program.review@suny.edu*.

Section 1. General Information		
a) Institutional Information	Institution's 6-digit SED Code:	**210500**
	Institution's Name:	University at Albany
	Address:	*1400 Washington Ave, Albany, NY 12222*
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 [X] if not applicable**:	
c) Registered Program to be Changed	Program Title:	Mathematics
	SED Program Code	03012, 28842, 82306, 89209
	Award(s) (e.g., A.A., B.S.):	B.A.
	Number of Required Credits:	Minimum [120] If tracks or options, largest minimum [ ]
	HEGIS Code:	1701
	CIP 2010 Code:	27.0101
	Effective Date of Change:	Fall 2023
	Effective Date of Completion[2]	Spring 2027
d) Campus Contact	Name and title: Kaitlyn Beachner, Staff Associate for Undergraduate Academic Programs Telephone and email: 518 – 442 – 3941; kbeachner@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: Carol Kim, Ph.D., Senior Vice President for Academic Affairs & Provost Signature and date:  January 31, 2023	
	If the program will be registered jointly[3] with one or more other institutions, provide the following information for each institution:	
	Partner institution's name and 6-digit SED Code: Name, title, and signature of partner institution's CEO (or **append** a signed letter indicating approval of this proposal):	

[1] To propose changes that would create a new program, Form 3B, Creating a New Program from Existing Program(s), is required.

[2] If the current program(s) must remain registered until enrolled students have graduated, the anticipated effective date by which continuing students will have completed the current version of the program(s).

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

Section 2. Program Information

Section 2.1. Changes in Program Content

[ ] No changes in program content. *Proceed to Section 2.2.*

a) Check all that apply. Describe each proposed change and why it is proposed.

[X] Cumulative change from SED's last approval of the registered program of one-third or more of the minimum credits required for the award (e.g., 20 credits for associate degree programs, 40 credits for bachelor's degree programs)
[ ] Changes in a program's focus or design
[ ] Adding or eliminating one or more options, concentrations or tracks
[ ] Eliminating a requirement for program completion (such as an internship, clinical placement, cooperative education, or other work or field-based experience). Adding such requirements must remain in compliance with SUNY credit cap limits.
[ ] Altering the liberal arts and science content in a way that changes the degree classification of an undergraduate program, as defined in Section 3.47(c)(1-4) of Regents Rules

Description:
We added more foundational courses to include the prerequisites of the required courses. We also added honors courses to be included as options within foundational work for students who are more advanced. We added Introduction to Proofs to include more foundation for upper level work and Information Literacy in Mathematics and Statistics to ensure students have a stronger basis in information literacy for the upper level work within the major. Some course options changed within the upper level elective areas based on expertise of faculty changing overtime. The Foreign Language requirement was removed due to having SUNY's General Education Foreign Language requirement instead.

b) Provide a side-by-side comparison of all the courses in the existing and proposed revised program that clearly indicates all new or significantly revised courses, and other changes.

1990 Math B.A. Requirements:	**2023 Proposed Changes to Mathematics B.A. Requirements:**	
Minimum of 36 credits including:	*Minimum of 40 credits, at least 24 of which must be at the 300 level or above, including:*	
	Required 6 Course Core:	
	Select one:	AMAT 111 – Algebra and Calculus II (4)
		AMAT 112 - Calculus I (4)
		AMAT 118 - Honors Calculus I (4)
	Select one:	AMAT 113 - Calculus II (4)
		AMAT 119 - Honors Calculus II (4)
MAT 214 – Calculus of Several Variables (4)	*Select one:*	AMAT 214 – Calculus of Several Variables (4)
		AMAT 218 – Honors Calculus of Several Variables (4)
MAT 220 – Linear Algebra (3)	*Select one:*	AMAT 220 - Linear Algebra (3)
		AMAT 222 - Honors Linear Algebra (3)
	AMAT 300 - Introduction to Proofs (3)	
	UUNL 299 – Information Literacy in Mathematics and Statistics (1)	
Algebra (select one 3 cr. course from the following list):	***Algebra (select one 3 cr. course from the following list):***	
MAT 326 – Classic Algebra (3)	AMAT 326 – Classic Algebra (3)	
MAT 327 – Elementary Abstract Algebra (3)	AMAT 327 – Elementary Abstract Algebra (3)	
	AMAT 328 – Introduction to Combinatorics (3)	
MAT 420 – Abstract Algebra (3)	*Removed option*	
MAT 424 – Advanced Linear Algebra (3)	AMAT 424 – Advanced Linear Algebra (3)	
MAT 425 – Number Theory (3)	*Removed option*	
MAT 441 – Introduction to Algebraic Topology (3)	*Removed option*	
Analysis (select one 3 cr. course from the following list):	***Analysis (select one 3 cr. course from the following list; students who take AMAT 215 must take an additional 300-level elective):***	
	AMAT 215 – Ordinary Differential Equations (3)	
MAT 312 – Basic Analysis (3)	AMAT 312 – Basic Analysis (3)	
MAT 314 – Applied Analysis I (3)	AMAT 314 – Analysis for Applications (3)	
MAT 315 – Applied Analysis II (3)	*Removed option*	
MAT 401 – Numerical Analysis (3)	*Removed option*	
MAT 409 – Vector Analysis (3)	AMAT 409 – Vector Analysis (3)	
MAT 412 – Complex Variables for Applications (3)	AMAT 412 – Complex Variables for Applications (3)	
MAT 413 – Advanced Calculus I (3)	AMAT 413 – Advanced Calculus I (3)	
MAT 414 – Advanced Calculus II (3)	AMAT 414 – Advanced Calculus II (3)	
MAT 481a – Junior-Senior Analysis Seminar (3)	*Removed option*	
MAT 481b – Junior-Senior Analysis Seminar (3)	*Removed option*	
Geometry/Topography (select one 3 cr. course from the following list):	***Geometry/Topography (select one 3 cr. course from the following list):***	
MAT 331 – Transformation Geometry (3)	AMAT 331 – Transformation Geometry (3)	
MAT 342 – Elementary Topology (3)	AMAT 342 – Elementary Topology (3)	
MAT 432 – Foundations of Geometry (3)	AMAT 432 – Foundations of Geometry (3)	
MAT 441 – Introduction to Differential Geometry (3)	AMAT 441 – Introduction to Differential Geometry (3)	
MAT 442 – Introduction to Algebraic Topology (3)	AMAT 442 – Introduction to Algebraic Topology (3)	
Probability/Statistics (select one 3 cr. course from the following list):	***Probability/Statistics (select one 3 cr. course from the following list):***	
MAT 308Y – Topics in Statistical Inference (3)	MAT 308 – Topics in Statistical Inference (3)	
MAT 362 – Introduction to Statistics I (3)	*Select one:*	AMAT 362 – Probability for Statistics I (3)
MAT 367 – Discrete Probability (3)		AMAT 367 – Discrete Probability (3)
MAT 363 – Introduction to Statistics II (3)	AMAT 363 –Statistics (3)	

	AMAT 370 – Probability and Statistics for Engineering and the Sciences (3)
MAT 464 – Applied Stochastic Process (3)	AMAT 464 – Applied Stochastic Process (3)
MAT 465 – Applied Statistics (3)	*Removed option*
MAT 467 – Introduction to Theory of Statistics I (3)	*Removed option*
	AMAT 467 – Continuous Probability and Mathematical Statistics (3)
MAT 468 – Introduction to Theory of Statistics II (3)	*Removed option*
Proficiency in College Level Foreign Language. Satisfactory completing 1 year of College Level Language or taking Language Placement Examination and placing beyond the first year.	*Removed requirement*
17 elective credits in Mathematics and Statistics Courses above MAT 109	***9 credits (12 credits for students who took AMAT 215 for the Analysis requirement) in elective math courses at the 300 level or above.***
MAT 112Y – Calculus I (4)	*Core option in 2019*
MAT 113Y – Calculus II (4)	*Core option in 2019*
MAT 180 – Calculus Seminar (1)	*Removed option*
MAT 204 – Actuarial Calculus and Linear Algebra (1)	*Removed option*
MAT 221 – Introduction to Discrete Mathematics (3)	*Removed option*
MAT 301 – Theory of Interest (3)	AMAT 301 – Theory of Interest (3)
MAT 308Y – Topics in Statistical Inference (3) *(if not selected within categories listed above)*	AMAT 308 – Topics in Statistical Inference (3)
MAT 312 – Basic Analysis (3) *(if not selected within categories listed above)*	AMAT 312 – Basic Analysis (3)
MAT 314 – Applied Analysis I (3) *(if not selected within categories listed above)*	AMAT 314 – Analysis for Applications I (3)
MAT 315 – Applied Analysis II (3) *(if not selected within categories listed above)*	AMAT 315 – Analysis for Applications II (3)
MAT 326 – Classic Algebra (3) *(if not selected within categories listed above)*	AMAT 326 – Classical Algebra (3)
MAT 327 – Elementary Abstract Algebra (3) *(if not selected within categories listed above)*	AMAT 327 – Elementary Abstract Algebra (3)
	AMAT 328 – Introduction to Combinatorics (3)
MAT 331 – Transformation Geometry (3) *(if not selected within categories listed above)*	AMAT 331 – Transformation Geometry (3)
MAT 342 – Elementary Topology (3) *(if not selected within categories listed above)*	AMAT 342 – Elementary Topology (3)
MAT 362 – Introduction to Statistics I (3) *(if not selected within categories listed above)*	AMAT 362 – Probability for Statistics (3)
MAT 363 – Introduction to Statistics II (3) *(if not selected within categories listed above)*	*Removed option*
MAT 367 – Discrete Probability (3) *(if not selected within categories listed above)*	AMAT 367 – Discrete Probability (3)
MAT 372/Z – Linear Programming and Game Theory (3)	AMAT 372/Z – Linear Programming and Game Theory (3)
MAT 374 – Operations Research (3)	AMAT 374 – Operations Research (3)
MAT 401 – Numerical Analysis (3) *(if not selected within categories listed above)*	AMAT 401 – Numerical Analysis (3)
	AMAT 403 – Life Contingencies I (3)
	AMAT 404 – Life Contingencies II (3)
MAT 409 – Vector Analysis (3) *(if not selected within categories listed above)*	AMAT 409 – Vector Analysis (3)
MAT 412 – Complex Variables for Application *(if not selected within categories listed above)*s (3)	AMAT 412 – Complex Variables for Applications (3)
MAT 413 – Advanced Calculus I (3) *(if not selected within categories listed above)*	AMAT 413 – Advanced Calculus I (3)

MAT 414 – Advanced Calculus II (3) *(if not selected within categories listed above)*	AMAT 414 – Advanced Calculus II (3)
MAT 416 – Partial Differential Equations (3)	AMAT 416 – Partial Differential Equations (3)
MAT 420 – Abstract Algebra (3) *(if not selected within categories listed above)*	AMAT 420 – Topics in Abstract Algebra (3)
MAT 424 – Advanced Linear Algebra (3) *(if not selected within categories listed above)*	AMAT 424 – Advanced Linear Algebra (3)
MAT 425 – Number Theory (3) *(if not selected within categories listed above)*	AMAT 425 – Number Theory (3)
MAT 432 – Foundations of Geometry (3) *(if not selected within categories listed above)*	AMAT 432 – Foundations of Geometry (3)
MAT 441 – Introduction to Differential Geometry (3) *(if not selected within categories listed above)*	AMAT 441 – Introduction to Differential Geometry (3)
MAT 442 – Introduction to Algebraic Topology (3) *(if not selected within categories listed above)*	AMAT 442 – Introduction to Algebraic Topology (3)
MAT 452/Z – History of Mathematics (3)	AMAT 452/Z – History of Mathematics (3)
MAT 464 – Applied Stochastic Process (3) *(if not selected within categories listed above)*	*Removed option*
MAT 465 – Applied Statistics (3) *(if not selected within categories listed above)*	AMAT 465/Z – Applied Statistics (3)
MAT 467 – Introduction to Theory of Statistics I (3) *(if not selected within categories listed above)*	*Removed option*
	AMAT 467 – Continuous Probability and Mathematical Statistics (3)
MAT 468 – Introduction to Theory of Statistics II (3) *(if not selected within categories listed above)*	*Removed option*
	AMAT 468 – Mathematical Statistics (3)
MAT 469 – Actuarial Probability and Statistics (1)	AMAT 469 – Actuarial Probability and Statistics (1)
MAT 481a,b – Junior-Senior Analysis Seminar (3) *(if not selected within categories listed above)*	*Removed option*
MAT 497 – Independent Study in Mathematics (1-3)	AMAT 487 – Independent Study in Mathematics (1-3)

c) For each new or significantly revised course, **provide** a syllabus at the end of this form, and, on the ***SUNY Faculty Table*** provide the name, qualifications, and relevant experience of the faculty teaching each new or significantly revised course. 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.*

AMAT 118 - Honors Calculus I (4)
AMAT 119 - Honors Calculus II (4)
AMAT 218 – Honors Calculus of Several Variables (4)
AMAT 222 - Honors Linear Algebra (3)
AMAT 300 - Introduction to Proofs (3)
AMAT 215 – Ordinary Differential Equations (3)
AMAT 328 – Introduction to Combinatorics (3)
AMAT 370 – Probability and Statistics for Engineering and the Sciences (3)
AMAT 403 – Life Contingencies I (3)
AMAT 404 – Life Contingencies II (3)
AMAT 467 – Continuous Probability and Mathematical Statistics (3)
AMAT 468 – Mathematical Statistics (3)
UUNL 299 – Information Literacy in Mathematics and Statistics (1)

d) What are the additional costs of the change, if any? If there are no anticipated costs, explain why.

No additional costs. No faculty are being hired at this time.

Section 2.2. Other Changes

Check all that apply. Describe each proposed change and why it is proposed.

[ ] Program title
[ ] Program award
[ ] Mode of delivery
NOTES: *(1) If the change in delivery enables students to complete 50% of more of the program via distance education, submit a Distance Education Format Proposal* as part of this proposal. *(2) If the change involves adding an accelerated version of the program that impacts financial aid eligibility or licensure qualification, SED may register the version as a separate program.*
[ ] Format change(s) (e.g., from full-time to part-time), based on SED definitions, for the **entire** program
1) State proposed format(s) and consider the consequences for financial aid
2) Describe availability of courses and any change in faculty, resources, or support services.
[ ] A change in the total number of credits in a certificate or advanced certificate program

[ ] Any change to a registered licensure-qualifying program, or the addition of licensure qualification to an existing program. **Exception:** Small changes in the required number of credits in a licensure-qualifying program that do not involve a course or courses that satisfy one of the required content areas in the profession. **ection 3. Program Schedule and Curriculum**

a) For **undergraduate programs**, complete the ***SUNY Undergraduate Program Schedule*** to show the sequencing and scheduling of courses in the program. If the program has separate tracks or concentrations, complete a ***Program Schedule*** for each one.

NOTES: *The* ***Undergraduate Schedule*** *must show* ***all curricular requirements*** *and demonstrate that the program conforms to SUNY's and SED's policies.*

- *It must show how a student can complete all program requirements within SUNY credit limits, unless a longer period is selected as a format in Item 2.1(c): two years of full-time study (or the equivalent) and 64 credits for an associate degree, or four years of full-time study (or the equivalent) and 126 credits for a bachelor's degree. Bachelor's degree programs should have at least 45 credits of upper division study, with 24 in the major.*
- *It must show how students in A.A., A.S. and bachelor's programs can complete, within the first two years of full-time study (or 60 credits), no fewer than 30 credits in approved SUNY GER courses in the categories of Basic Communication and Mathematics, and in at least 5 of the following 8 categories: Natural Science, Social Science, American History, Western Civilization, Other World Civilizations, Humanities, the Arts and Foreign Languages*
- *It must show how students can complete Liberal Arts and Sciences (LAS) credits appropriate for the degree.*
- *When a SUNY Transfer Path applies to the program, it must show how students can complete the number of SUNY Transfer Path courses shown in the Transfer Path Requirement Summary within the first two years of full-time study (or 60 credits), consistent with SUNY's Student Seamless Transfer policy and MTP 2013-03.*
- *Requests for a program-level waiver of SUNY credit limits, SUNY GER and/or a SUNY Transfer Path require the campus to submit a Waiver Request –with compelling justification(s).*

EXAMPLE FOR ONE TERM: Undergraduate Program Schedule

Term 2: Fall 20xx	Credits per classification						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Prerequisite(s)**
ACC 101 Principles of Accounting	4			4	4		
MAT 111 College Mathematics	3	M	3	3			MAT 110
CMP 101 Introduction to Computers	3						

HUM 110 Speech	3	BC	3			X	
ENG 113 English 102	3	BC	3				
Term credit total:	16	6	9	7	4		

b) *For **graduate programs**, complete the **SUNY Graduate Program Schedule**. If the program has separate tracks or concentrations, complete a **Program Schedule** for each one.*

***NOTE:** The **Graduate Schedule** must include all curriculum requirements and demonstrate that expectations from Part 52.2(c)(8) through (10) of the Regulations of the Commissioner of Education are met.*

SUNY Undergraduate Program Schedule (***OPTION: You can paste an Excel version of this schedule AFTER this line, and delete the rest of this page.)***

Program/Track Title and Award:___Mathematics B.A._____

a) Indicate **academic calendar type**: [x] Semester [ ] Quarter [ ] Trimester [ ] Other (describe):

b) **Label each term in sequence**, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)

c) **Name of SUNY Transfer Path, if one exists: ___Mathematics_____ See Transfer Path Requirement Summary for details**

d) Use the table to show **how a typical student may progress through the program**; copy/expand the table as needed. **Complete all columns that apply to a course.**

Term 1:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT 111 Algebra and Calculus II OR AMAT 112 Calculus I OR AMAT 118 Honors Calculus I	4	MS	4	4	X	X 118	3 Years of High School Math
General Education: Social Science	3	SS	3				
General Education: Natural Science	3	NS	3				
General Education: International Perspectives	3	WC	3				
LAS Elective	3		3				
Term credit totals:	16	13	16	4			

Term 2:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT 113 Calculus II OR AMAT 119 Honors Calculus II	4	MS	4	4	X	X 119	AMAT 111 or 112 or 118
LAS Elective	3		3				
General Education: Humanities	3	HU	3				
UUNI 110 Writing and Critical Inquiry	3	BC	3				
Free Elective	3						
Term credit totals:	16	10	13	4			

Term 3:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT 214 Calculus of Several Variables OR AMAT 218 Honors Calculus of Several Variables	4		4	4	X	X 218	AMAT 113 or 119
AMAT 300 Introduction to Proofs	3		3	3		X	AMAT 113 or 119
UUNL 299 Information Literacy in Mathematics and Statistics	1		1	1		X	
General Education: American History	3	AH	3				
General Education: Foreign Language	3	FL	3				
Term credit totals:	14	6	14	8			

Term 4:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT 220 Linear Algebra OR AMAT 222 Honors Linear Algebra	3		3	3	X		AMAT 113
General Education: Art	3	AR					
LAS Elective	3		3				
Local General Education: Challenges 21st Century	3		3				
Free Elective	3						
Term credit totals:	15	3	9	3			

Term 5:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT Analysis Course (Upper Level)	3		3	3			AMAT 214,300
AMAT Geo/Topology Course (Upper Level)	3		3	3			AMAT 220,300
LAS Elective	3		3				
LAS Elective	3		3				
Free Elective	3						
Term credit totals:	15		12	6			

Term 6:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT Algebra Course (Upper Level)	3		3	3			AMAT 214,220,300
AMAT Prob/Stats Course(Upper Level)	3		3	3			AMAT 214/300
LAS Elective	3		3				
LAS Elective	3		3				
Free Elective	3						
Term credit totals:	15		12	6			

Term 7:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
AMAT Elective (Upper Level)	3		3	3			
AMAT Elective (Upper Level)	3		3	3			
LAS Elective (Upper Level)	3		3				

Term 8:	See KEY.						
Course Number & Title	**Cr**	**GER**	**LAS**	**Maj**	**TPath**	**New**	**Co/Prerequisites**
Free Elective (Upper Level)	3						
AMAT Elective (Upper Level)	3		3	3			
Free Elective (Upper Level)	3						

Free Elective (Upper level)	3								LAS Elective (Upper Level)	3		3				
Free Elective (Upper level)	3								Free Elective (Upper Level)	3						
Term credit totals:	15		9	6					Term credit totals:	15		6				

Program Totals (in credits):	Total Credits: 121	SUNY GER: 32	LAS: 91	Major: 40	Elective & Other: 54	Upper Division: 45	Upper Division Major: 24	Number of SUNY GER Categories: 9

KEY Cr: credits **GER:** SUNY General Education Requirement (Enter Category Abbreviation) **LAS:** Liberal Arts & Sciences (Enter credits) **Maj:** Major requirement (Enter credits) **TPath:** SUNY Transfer Path Courses (Enter credits) **New:** new course (Enter X) **Co/Prerequisite(s):** list co/prerequisite(s) for the noted courses **Upper Division:** Courses intended primarily for juniors and seniors **SUNY GER Category Abbreviations:** American History (AH), Basic Communication (BC), Foreign Language (FL), Humanities (H), Math (M), Natural Sciences (NS), Other World Civilizations (OW), Social Science (SS), The Arts (AR), Western Civilization (WC)

SUNY Graduate Program Schedule ***OPTION:*** ***You can insert an Excel version of this schedule AFTER this line, and delete the rest of this page.)***

Program/Track Title and Award:_____

a) Indicate **academic calendar** type: [ ] Semester [ ] Quarter [ ] Trimester [ ] Other (describe):

b) **Label each term in sequence**, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)

c) Use the table to show **how a typical student may progress through the program**; copy/expand the table as needed.

d) Complete the last row to show program totals and comprehensive, culminating elements. **Complete all columns that apply to a course.**

Term 1:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 2:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 3:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 4:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 5:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 6:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 7:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites**
Term credit total:			

Term 8:			
Course Number & Title	**Credits**	**New**	**Co/Prerequisites)**
Term credit total:			

Program Total:	**Total Credits:**	**Identify the required comprehensive, culminating element(s), such as a thesis or examination, including course number(s), if applicable:**

New: X if new course **Prerequisite(s)**: list prerequisite(s) for the listed courses

Section 4. SUNY Faculty Table

a) If applicable, provide information on faculty members who will be teaching new or significantly revised courses in the program. Expand the table as needed.

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

(a)	(b)	(c)	(d)	(e)	(f)
Faculty Member Name and Title and/or Rank at the Institution (Include and identify Program Director.)	**% 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 and licenses and professional experience in field.**
PART 1. Full-Time Faculty					
Dr. Jesse Corradino, Lecturer	100%	AMAT 370, Prob and Stats for Engineering	PhD, University at Albany	Mathematics	
Dr. Martin Hildebrand, Professor	100%	AMAT 404, Life Contingencies II, AMAT 467, Continuous Probability and Mathematical Statistics AMAT 468, Mathematical Stats	PhD, Harvard University	Mathematics	
Irina Holden, Information Literacy and Science Outreach Librarian	50%	UUNL299, Information Literacy in Mathematics and	MSIS, University at Albany	Library and Information Sciences	
Dr. Cristian Lenart, Professor	100%	AMAT 328, Combinatorics	PhD, University of Cambridge	Mathematics	
Dr. Steven Plotnick, Associate Professor and Undergraduate Program Director	100%	AMAT 118, Honors Calc I; AMAT 119, Honors Calc II; T/AMAT 218, Calc of Several Variables; AMAT 300, Intro to Proofs	PhD, University of Michigan	Mathematics	
Dr. Karin Reinhold, Associate Professor	100%	AMAT 403, Life Contingencies I; AMAT 467, Mathematical Stats	PhD, Ohio State University	Mathematics	
Dr. Anupam Srivastav, Associate Professor	100%	TMAT 252 Intro to Great Theorems in Math	PhD, University of Illinois, Urbana-Champagne	Mathematics	

(a)	(b)	(c)	(d)	(e)	(f)
Faculty Member Name and Title and/or Rank at the Institution (Include and identify Program Director.)	**% 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 and licenses and professional experience in field.**
Dr. Matthew Zaremsky, Assistant Professor	100%	A/TMAT 222, Honors Linear Algebra	PhD, University of Virginia	Mathematics	
Part 2. Part-Time Faculty					
Dr. Daniel Wood, Lecturer	75%	AMAT 215 Ordinary Differential Equations	PhD, University at Albany	Mathematics	
Scott Sidoli, Lecturer	100%	AMAT 111 Algebra and Calculus I	Ph.D., University at Albany	Mathematics	
Adam Schultze, Lecturer	100%	AMAT 112 Calculus I	Ph.D., University at Albany	Mathematics	
Robert Spahn, Lecturer	50%	AMAT 113, Calc II	PhD, University at Albany	Mathematics	
Part 3. To-Be-Hired Faculty (List as TBH1, TBH2, etc., and provide expected hiring date instead of name.)					
None to be hired at this time					

Mathematics BA Syllabi:

AMAT 111 – Algebra and Calculus II (4)

AMAT 112 – Calculus I (4)

AMAT 113 – Calculus II (4)

AMAT 118 - Honors Calculus I (4)

AMAT 119 - Honors Calculus II (4)

AMAT 218 – Honors Calculus of Several Variables (4)

AMAT 222 - Honors Linear Algebra (3)

AMAT 300 - Introduction to Proofs (3)

AMAT 215 – Ordinary Differential Equations (3)

AMAT 328 – Introduction to Combinatorics (3)

AMAT 370 – Probability and Statistics for Engineering and the Sciences (3)

AMAT 403 – Life Contingencies I (3)

AMAT 404 – Life Contingencies II (3)

AMAT 467 – Continuous Probability and Mathematical Statistics (3)

AMAT 468 – Mathematical Statistics (3)

UUNL 299 – Information Literacy in Mathematics and Statistics (1)

AMAT 111: Algebra and Calculus II (4 credits)
Class number: 1958
Fall 2018

Instructor: Dr. Scott Sidoli, PhD Office: ES213
Email: ssidoli@albany.edu Phone: (518) 442-4600
Meeting Time and Place: TuTh 2:45pm – 4:05pm, ES 140; We 2:45pm – 3:40pm
Office Hours: Tu 4:15pm – 6:15pm; We 1:30pm – 2:30pm

Textbook: Stewart, James. Calculus: Early Transcendentals, 8th edition.

Course Description: The second semester of an integrated approach to pre-calculus and calculus. Serves as a prerequisite to AMAT 113. Topics include techniques of differentiation, applications of differentiation, the definite integral, antiderivatives, the fundamental theorem of calculus, techniques of integration. **Prerequisite(s):** AMAT 101.

Course Objectives: To develop an understanding of elementary functions from the calculus perspective. We wish to develop the skills of differentiation and to see how these apply to real world problems including problems involving instantaneous rates of change, natural growth and decay, related rates, curve sketching, optimization, and net change. Perhaps more importantly, we wish to develop critical thinking and problem solving skills.

Attendance: Attendance will be taken at the beginning of each class and you are expected to attend all classes.

Absences: You are responsible for any material that is covered and any announcements that are made. If you are absent on an exam day, a doctor's note is required to make up the exam.

Homework: Homework will be assigned via Webassign each Thursday and must be submitted by 11:59pm on the following Thursday. A few homework assignments may be due in class. To use Webassign, you must have an internet connection, class key (I give you that), and an access code (comes with purchase of the book or by itself). Steps for signing up on WebAssign are given on the reverse.

Quizzes: There will be a weekly quiz given each Thursday with problems similar to the homework set which is due that day. The lowest quiz grade will be dropped.

Exams: There will be three in-class exams and a final. The final is scheduled for

Tuesday, December 18th from 1:00pm – 3:00pm.

If you are unable to attend an exam, prior notification or a doctor's note is required to make up the exam.

Grading: Homework is 15%, quizzes are 15%, the in-class exams are 15% each, and the final is 25%.

A	93-100	**B-**	80-82	**D+**	67-69
A-	90-92	**C+**	77-79	**D**	63-66
B+	87-89	**C**	73-76	**D-**	60-62
B	83-86	**C-**	70-72	**E**	Below 60

Cheating: If you are caught cheating you will receive a failing grade for the course and I am required to report it to the dean. This may result in expulsion from the university. http://www.albany.edu/undergraduate_bulletin/regulations.html

Registering for WebAssign: You need three things: a class key (I give you that), an access code (you buy that with the book, or by itself), and an internet connection. Getting on to WebAssign is as easy as the following steps:

1) Go to www.webassign.net
2) Click the gray box in the upper right corner entitled "Enter Class Key"
3) You will see three boxes. The class key for this course is **albany 2054 8873** (the **albany** goes in the first box, **2054** goes in the second box, etc.). Verify that this is, in fact, the correct section!
4) Create a WebAssign account if you need to, or simply use your old one. If you purchased lifetime access previously, then you must use your old account. If you are creating an account, this will be where you determine your username and password.
5) You must then input your **access code** (if you did not already obtain access for the lifetime of the edition). You already have the access code if you purchased a hard copy of the book. If you have not purchased the hard copy, you can purchase the access code online through WebAssign or at the bookstore.

You have free access to WebAssign until **Monday, September 10th**. Failure to obtain an access code by this date will result in you getting locked out of WebAssign. You will be unable to view the E-book or any other resource that is provided by Webassign. You will also be unable to complete the homework. **Good luck!**

Topics include: techniques of differentiation, applications of differentiation, the definite integral, antiderivatives, the fundamental theorem of calculus, techniques of integration.

AMAT 112 - Calculus I
4 credits
Dr. Adam Schultze
Office Hours: Wed 3:00-4:00pm
Prerequisite(s): A MAT 100 or precalculus at the high school or college level. Students without precalculus should elect A MAT 100.

Grading:
The class will use the university's A-E grading scheme.
25%: Homework and Quizzes
20%: Midterm I
20%: Midterm II
35%: Final

Course Description:
Calculus of one variable. Limits, continuity, differentiation of algebraic functions, applications of differentiation, anti-derivatives, the definite integral, transcendental functions.

Grade Scale (%)	Grade Conversion	Grade Definition
93-100	A	Superior
90-92	A-	
87-89	B+	Good
83-86	B	
80-82	B-	
77-79	C+	Satisfactory
73-76	C	
70-72	C-	
67-69	D+	Poor
63-66	D	
60-62	D-	
< 60	E	Failure

Based on ***Single Variables Calculus, Early Transcendentals***, **8th ed., by James Stewart**

The number of classes devoted to each chapter is an estimate of the minimum time required, and assumes a 55 minutes class length, with the class meeting four times per week. Adjustments need to be made for classes meeting three times per week (TU, TH, plus add. day). This syllabus leaves additional class meetings for review, further emphasis, exams, etc. Since academic calendars vary in length, check the official university calendar for the particular semester as you map out your class.

Diagnostics, Appendices A and B, Chapter 1: Functions and Models (7 classes)

You may wish to give a diagnostic test made up from the diagnostic tests in the text on the second class meeting, after telling students on the first day to review these problems. Based on the results, you may advise some students to take MAT 101 instead of 112. The material in Appendices A and B is basic, and students should be familiar with it, so review it briefly. Section 1.4 should be covered very briefly in class, but students should be encouraged to read it. Because of the importance of exponential and logarithmic functions for calculus and applications, sections 1.5 and 1.6 should be covered thoroughly, although most people prefer to postpone the discussion of inverse trig functions until 3.5 (implicit differentiation), when you can calculate their derivatives.

Chapter 2: Limits and Derivatives (8 classes)

Limits should be well understood at an intuitive level, with lots of examples. Skip 2.4, the technical definition of limit. The limit laws (2.3) and continuity (2.5) are important. Cover sections 2.7 and 2.8 carefully, so that students get a solid understanding of derivatives (as limits and functions) before getting involved in the mechanics of computing them.

Chapter 3: Differentiation Rules (13 classes)

Note that exponential functions are treated immediately after polynomials. Keep emphasizing the different differentiation rules early on, as these are easily confused by students. Mix problems with power functions and exponential functions to reinforce the differences. You may want to cover parts of 3.8 (exponential growth and decay) right after 3.1. Section 3.11 may be skipped.

Chapter 4: Applications of Differentiation (10 classes)

Go easy with the mean value theorem, focus on the geometric meaning. As far as graphing of functions, section 4.3 is fundamental and should be covered thoroughly. Focus on simple examples to reinforce the ideas, don't spend much time on overly complicated graphs - graphing calculators are here to stay. Much of 4.6 could be assigned as reading project. Don't get involved in complicated optimization problems; it's more important to cover a few computationally simple examples thoroughly. Inclusion of antiderivatives (4.9) in this chapter helps to separate and distinguish this concept from (definite) integrals. Newton's method (4.8) can be skipped if time is running short.

Chapter 5: Integrals (5 classes)

It is important to emphasize that the definite integral is a number calculated (in principle) by limits of Riemann sums. It helps to include a few other applications (say volumes, from Chapter 6) early on to show other situations where such limits arise. The Fundamental Theorem of Calculus (5.3) is of course the high point of the chapter, and you should make sure that both versions (construction of antiderivatives and evaluation of integrals by antiderivatives) are understood well. A more thorough discussion of applications (Chapter 6) is left for MAT 113.

Revised to adjust for changes in Early Transcendentals, 6th ed., August 2007, by M. Range, June 2009 S. Plotnick

Learning Objectives

- Construct proofs using techniques from logic such as proof by contradiction and/or specific techniques such as the principle of induction.
- Analyze and check correctness of mathematical arguments, and read mathematical text independently.
- Apply an advanced abstract mathematical idea to a concrete real-world problem (e.g., application of differential equations, or linear programming, or RSA or error correction codes).
- Write effectively using language appropriate for mathematical discourse.
- Use calculus to analyze and evaluate properties of real valued functions.
- Successfully complete two sequences of two advanced courses in different areas of mathematics, establishing depth required, for example, for further graduate studies in mathematics and natural sciences.

AMAT 113 Calculus II Syllabus

Course number: AMAT 113
Class no: 3937 / 3934 – 0030/0026
Credit Hours: 4
Lecture times: (0030) Wednesday 4:30-5:50 PM
(0030) Tuesday 4:30-5:25 PM
(0026) Monday 6:00-7:20 PM
(0026) Tuesday 6:00-6:55 PM
Lecture location: Via Zoom http://bit.ly/AMAT113Zoomlink Password: MathIsFun

Instructor: Dr. Robert Spahn Ph.D.
E-mail: rspahn@albany.edu
Office: ES210

Office Hours: Via Zoom - Monday 4:30-5:30 PM, Tuesday & Friday 1:00-2:00 PM, Wednesday 6:00-7:00 PM, and by appointment http://bit.ly/AMAT113ZoomOH Password: MathIsFun

Pre-requisites: AMAT111 or AMAT112

Course Description: From the math department's course catalog: Techniques of integration, applications of the definite integral, conics, polar coordinates, improper integrals, infinite series. AMAT119 is the honors version of AMAT113 and substitutes for AMAT113 toward the prerequisite in any course. Only one of AMAT113, AMAT119 and TMAT119 may be taken for credit.

Learning Objectives: A student who has passed Calculus II course will be able to:

1. Explain (or describe) the development of calculus as the solution to questions about rate and area and the role of calculus in science. (History)
2. Describe the properties of and perform computations involving the concepts of limit, derivativeand integral. (Knowledge)
3. Be able to read, write and speak the language of advanced mathematics. (Communication)
4. Deduce complicated problems in mathematics, the physical and life sciences and other disciplinesto simple rules and procedures by applying the major concepts and theorems of calculus. (Modeling)
5. Use deductive reasoning in mathematics and be able to produce arguments involving several steps. (Proofs)

General Education Goals

The material to be taught for this course satisfies the four general education objectives for mathematics in many and various self-evident ways. These objectives are:

2. The ability to decipher, interpret, and draw conclusions from formal or mathematical models such as formulas, graphs, and/or truth tables, and an understanding of the concepts used in such models

3. The ability to formulate and/or represent problems in manners appropriate to mathematical, statistical, or logical analysis
4. The ability to employ appropriate mathematical computations, statistical techniques, or logical methods to solve problems and/or draw conclusions from data
5. The ability to evaluate results and recognize the limits of methods and/or models within the context of the discipline, as appropriate

Course requirements

1. **Textbook:** Calculus Early 'Transcendentals 9^{th} edition by Stewart, Clegg, Watson with WebAssign

2. **Course Topics:**
   Throughout this course, we will cover parts of five chapters:
   - Ch. 6: Applications of Integration, Sections 6.1-6.3, 6.5
   - Ch. 7: Techniques of IntegrationSections: 7.1-7.5, 7.8
   - Ch. 8: Further Applications of Integration, Sections: 8.1-8.2
   - Ch. 10: Parametric Equations and Polar Coordinates, Sections: 10.1-10.4
   - Ch. 11: Sequences, Series, and Power Series, Sections: 11.1-11.10

3. **Assignments and Exams:**
   - *Lecture Assignments* will involve reading the textbook and listening to video lectures, which will be followed up with an answering the corresponding questions during and after the videos for each section, and due the day assigned according to the schedule. Please submit these answers via Blackboard.
   - *Homework assignments* will be assigned after every section. The assignments will be due via WebAssign by 11:59 PM on the following after the lecture according to the included schedule. Extensions for homework assignments will be allowed with an automatic penalty of 20% per day of the extension with sufficient reasoning.
   - ***Group assignments*** will consist of a problem set which you will do individually and post your solution set toa Blackboard discussion group. Once you post your solution(s) you will analyze at least one of your classmates' solutions and respond to them thoughtfully. When responding to someone else's solution, you are expected to provide respectful and detailed feedback, such as pointing out a mistakeor explaining how their approach helped you understand how to work on the problem better. Both the initial post and at least one response to a peer's post will be due on the day listed on the schedule by 11:59 PM. You are welcome to continue the conversation beyond these deadlines. An example of how this will work will be provided as well as a rubric.
   - You are expected to take all scheduled exams at time announced and to obey the academic integrity policy. There will be four exams:
     - Exam 1 - Review of Calculus 1 and Chapter 6
     - Exam 2 - Chapters 7 and 8
     - Exam 3 - Chapters 10 and 11
     - Final exam - cumulative (details of which will be announced before end of classes in April).

- Some, possibly all, exams will have a diagnostic assignment to be done before it. This should not be taken as a representation of the exam, but rather a compilation of questions that will assist you in focusing your studies for the examinations. I suggest doing exam wrappers, which are explained later in this document, after each exam. These will be to assist. you in immediately reflecting upon what. went right in your preparation for the examination as well as what you need to work on.

4. Textbook and WebAssign:

- WebAssign is an online homework platform where homework will be assigned and submitted. Additionally, you'll have access to an online version of the textbook. To purchase WebAssign access, here'sa direct link with a few main options that I'll explain below. *http: //www.cengagebrain.com/coursc/4082121*
- There are three options for WebAssign:
  - **Cengage Unlimited** (4 months)
  - **Cengage Unlimited** (12 months)
  - **WebAssign Instant Access for Stewart's Calculus**
- Options 1 and 2 are identical except for the duration, so 1 would be best if you are taking another course that uses a something through Cengage online and 2 would be best if you are taking a course next semester that uses something through Cengage such as Calculus 3. Option 3 will give you access to WebAssign, and *only* WebAssign, for the semester. For further assistance please call tech support at 800-354-9706.
- Please note that I have integrated WebAssign with our Blackboard, so a "Class Key" will not be provided. This will provide you with a single sign on and be able to get to WebAssign through the Blackboard course. In the event that you call technology support at the information above, please explain this to them as LMS integration is still new to WebAssign.
- If you're looking at the textbook, we'll be going through material from chapters 6-8,10, and 11. Additionally, you'll be expected to know the basic material from Calculus I (namely, elementary material regarding limits, derivatives, integrals).

Grading policy:

- Grades will be maintained in the WebAssign course gradebook. Students are responsible for tracking their progress by referring to the online gradebook.
- This course will be graded using the standard A-E grading scheme. Grades in the **C** range represent performance that **meets expectations;** Grades in the **B** range represent performance that is **substantially better** than the expectations; Grades in the **A** range represent work that is excellent. A more detailed distribution can be found below.
- **Grade Distribution:**

Assignments	15%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Final Exam	25%

- The conversion from number to letter grades (with pluses and minuses distributed evenly) is as follows:

Letter grade distribution:			
93	A	73-76.99	C
90-92.99	A-	70-72.99	C-
87-89.99	B+	67-69.99	D+
83-86.99	B	63-66.99	D
80-82.99	B-	60-62.99	D-
77-79.99	C+	< 59.99	E

Other Information:

1. **Class Expectations, Participation and Rules:**
   - I expect you to work very hard, to approach your studies as a serious scholar, and to be respectful of everyone in the class, including me, your classmates, and yourself. I encourage you to participate and learn from each other to get the most out of this course. If you are confused on a topic there may be others confused as well so it never hurts to ask. The more active you are in class, the more you will get out of the class.
   - Remember, you must **show all your work!** Showing your work helps me understand your thinking and articulate feedback appropriately. It also allows me to award you as much partial credit as possible, however, no work shown will result in no credit.
   - While this is an online course, I welcome you to join me for Zoom Office Hours as well as request appointments via Zoom. If you would like to set up a recurring appointment for yourself or a group, please speak to me separately. On all Zoom calls, please be respectful of me and others by coming prepared with questions and keeping your video on when speaking if possible.

2. **Academic Integrity:** Academic honesty is an expectation of this course and this university. You are expected to follow the University's Standards of Academic Integrity below. *https://www.albany.edu/undergraduate_bulletin/regulations.html*

3. **Technology policy:** As a department policy calculators and other technology arc prohibited on exams.

4. **Medical Excuse Policies:**
   https://www.albany.edu/health-center/meclicalexcuses.html

5. Please be aware that there is a Disability Resource Center at UAlbany (CC130, or virtually: *https: //www.UAlbany.edu/disability/)* which provides support programs and advocacy services to studentswith disabilities. If you need additional support because of a disability, please let me know!

6. **A brief note on online learning:** It should be a goal for every student to be able to keep pace with the material throughout the semester. Due to circumstances out of anybody's control, there are going to be instances in which this will he either difficult or impossible. Moreover, the switch from in-person

learningto online learning will impact different people in different ways. Therefore, I'd like you all to communicate with me as soon as possible if at any point during the semester you begin to feel overwhelmed or in need of help.

7. **Attendance policy:** It is important for you as a student and for the class as a whole for there to be a sufficient amount of people attending class. With this in mind, you are required to attend at least half the official class sessions (so at least one a week) otherwise I reserve the right to apply a penalty. If you attend fewer than half of the class sessions without an excuse your final grade will be dropped a full letter **grade** without exception.

Psychological Health During COVID-19:

It is normal to experience some psychological distress and a range of emotional reactions to an evolving global health situation, such as COVID-19. Some signs of distress may include:

- Difficulty concentrating
- Increased fear, anxiety, worry, or feeling paralyzed or overwhelmed
- Trouble sleeping
- Changes in appetite or eating habits
- Increase in alcohol or other drug use, and/or concerns about your use by friends or family
- Crying, sadness, loss of interest/pleasure
- Feeling hopeless and/or helpless

If your distress is interfering with your relationships, academic, work or daily life, confidential support is available to you. Contact Counseling and Psychological Services (CAPS) at 518-442-5800or consultation@albany.edu to schedule an appointment with a psychologist. Virtual counseling services are available. The CAPS website also contains self-help resources and other valuable information.

Thank you for your cooperation with these expectations and helping saves lives. It is only with your help and support that we will be able to take effective steps to address the critical consequences of the COVID-19 global pandemic. Together we can make a difference, one person at a time.

Some Important Strategies for Success in this Course

The assignments in this course are substantial and they will require you to think strategically about how best to use your time and the resources that are available to you. Below are some strategies that I recommend to ensure your success.

- Use the course schedule to pace your workload. Don't try to get an entire weeks worth of work done in a single day. The schedule outlined in the syllabus should help you manage the workload, which should allow you to succeed overall.
- Read and listen to the lectures critically and with care. Make sure that you are taking time to think, ask questions, make connections and interpret as you listen. An important way to do this is to take notes both on what you understand and what you find unclear so that you can focus on the lecture better.
- Review assignments and exams after completing them. A good way of doing this is going through what is called an "exam wrapper" which consists of the following:
    - How long did I spend preparing for the quiz/exam? Was that enough? Do I need to spend more time preparing for the next quiz/exam?

  - What did I do while I prepared/studies'! Did I:
    - Read/watch to find the big ideas in the text. (as opposed to small details)?
    - stop frequently to see if I knew whether I understood what I was reading/watching!
    - take notes?
    - summarize key concepts in my own words?
    - try to explain ideas; from the reading to someone else?
    - test myself to see if I could restate the big ideas?
  - What are two new strategies (from the list above or others) that I will try when I prepare for the nextquiz/exam?
- Work together! This can be done in a number of ways. While I have outlined the assignments for the semester, you are encouraged to do more! If there is something, you have a question on ask it in your discussion group or in the general Blackboard forum. The best way to ensure you have a mastery of the material is to explain it to someone else, and if there is something you have trouble explaining that is an indicator of what you need to work on yourself!
- Use me, the instructor, as a resource. I want you to be successful! Please don't hesitate to reach out to meif you find yourself in need of support as you navigate the requirements of the course. If you want to meet individually or as a group outside of the designated class time, please feel free to ask me and I can reserve a classroom.
- Take risks and have fun with the assignments. Dou 't be afraid to think in new ways and to question standard approaches - and don't be afraid of being "wrong." That's what we're here for! The key is to learn from it.

Class Schedule:

The following is a tentative schedule for the semester. It lists the week/day of the class, which lecture assignments (denoted by L followed by section #) I will be expecting yon to have completed, to have questions on and when the homework assignments (denoted by HW followed by section#) will be due for each section, when the group assignments are due, and when the exams are tentatively scheduled.

Week	Date	Sunday	Monday	Tuesday	Wednesday	Thursday
Wl	1/31 - 2/6				WebAssign/Mindset	
W2	2/7 - 2/13		16.1 - 6.3	GIA		
W3	2/14 - 2/20	HW6.1 - 6.3	L6.5, L7.1-7.2	GIB		
W4	2/21 - 2/27	HW6.5, HW7.l - 7.2	Review	G2A		Exam 1
W5	2/28 - 3/6			G2B	Break	
W6	3/7 - 3/13		17.3 - 7.5	G3A		
W7	3/14 - 3/20	HW7.3- 7.5	L7.8, 18.1 - 8.2	G3B		
W8	3/21 - 3/27	HW7.8, HW8.1 - 8.2	Review	G4A		Exam 2
W9	3/28 - 4/3		Ll0.1 - 10.2	G413		
WlO	4/4 - 4/10	HW10.1 - 10.2	L10.3 - 10.4	Break		
WU	4/11 - 4/17	HW10.3 - 10.4	L11.1 - 11.3	G5A		
W12	4/18 - 4/24	HWll.1 - 11.3	Lll.4 - 11.6	G5B		
Wl3	4/25 - 5/1	HWll.4 - 11.6	Review	G6A		Exam 3
Wl4	5/2 - 5/8		111.7 - 11.10	G6B		
Wl5	5/9 - 5/15	HWll.7 - 11.10		Last day		

- **Example Key:**
  - 16.1 is a video assignment to be submitted via Blackboard to the best of your ability by 12:00p.m. 011
    Monday, 2/8.
  - HW6.l is a section assignment to be completed on WebAssign that will be available after 16.1 and clue by 11:59p.m. on the day according to the schedule.
  - GIA is the day your initial response is due in your 13lackboard group for the group assignment.
  - Gll3 is the day your classmate response is due in your Blackboard group for the group assignment.
  - Exam 1 indicates the day the Exam 1 is tentatively scheduled.

TMAT 118/AMAT118: Honors Calculus 1 Fall 2022

4 Credit Hours

Instructor: Steven Plotnick **Email:** splotnick@albany.edu

Class Meeting Time/Place: M/W/Th 4:30 - 5:45pm
Office Hours: ES 123B M/W/F 11:30-12:55 and by appointment

Course Materials: Calculus Early Transcendentals 9th edition with WebAssign Access by James Stewart ISPN: 9780357531273. Access to WebAssign includes access to an electronic version of the textbook.

Prerequisite(s): Honors College Approval

Description: Calculus of one variable: Limits, continuity, differentiation, applications of differentiation, anti-derivatives, the definite integral, transcendental functions
This course has the same topics as AMAT112, but some topics are covered in greater depth. This course is for students with more than average ability and more than average interest in mathematics.

GE Category: Satisfies the MATH GE.

Use of Technology: Unless approved and officially documented by the University as an essential piece of assistive technology, the use of cell phones/tablets/laptops/headphones/smart watches during lecture and exams is prohibited. Calculators will not be allowed on any quiz or exam. Plan accordingly.

Homework (15%): Homework will be assigned regularly and must be completed on the WebAssign website. Typically, homework will be due Mondays and Thursdays by 11:59pm. Make-ups/Extensions will not be given. As such, your lowest three homework assignments will be dropped.

Quizzes (20%): There will be weekly quizzes given at the beginning of class. Quiz questions will be based on suggested blackboard problems from the textbook and homework problems. Your two lowest quiz scores will be dropped. Make-up quizzes will not be given.

Tests (40%): There will be a test in October and a test in November. Test dates will be announced at least one week in advance. Make-up tests will only be considered with documentation from the Office of the Vice Provost for Undergraduate Education located in Lecture Center 30.

Final Exam (25%): Friday December 9th from 3:30pm – 5:30pm in ES146. Make-up exams will only be considered with documentation from the Office of the Vice Provost for Undergraduate Education located in Lecture Center 30.

For all course assessments, you must show your work neatly and detailed, in the style of the course lectures for full credit. Using alternate techniques from other classes or the internet may not award credit. Plan accordingly.

Office Hours: Office hours are available for you to see me when you're having trouble understanding the material or would like to discuss course concepts. The material will accumulate quickly; do not wait to stop by office hours. I will be far more helpful if you can demonstrate that you're putting forth significant effort. Show me your detailed work and exactly where you are stuck in a problem. *If you are absent from class, it is your responsibility to get the notes from a classmate, read the textbook, and seek out available resources. I do not reteach full lectures in office hours. Plan accordingly.*

Academic Calendar: http://www.albany.edu/registrar/academic_calendar.php

Learning Objective: Students who complete this course will be able to complete and understand calculus of one variable: Limits, continuity, differentiation, applications of differentiation, antiderivatives, the definite integral, transcendental functions.

Students with Disabilities: Reasonable accommodations will be provided for students with documented physical, sensory, systemic, medical, cognitive, learning, and mental health (psychiatric) disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Disability Access and Inclusion Student Services (DAISS) (daiss@albany.edu). Upon verification and after the registration process is complete, the DAISS will provide you with a letter that informs me that you are a student with a disability registered with the DAISS and lists the recommended reasonable accommodations.

Remark on Grades: Please do not contact me requesting an unjustified higher grade. The grade that you earn, according to the rules of the syllabus, is the grade that I report.

Grade distribution:

A	**93 - 100%**
A-	**90 - 92%**
B+	**87 - 89%**
B	**83 - 86%**
B-	**80 - 82%**
C+	**77 - 79%**
C	**73 - 76 %**
C-	**70 - 72%**
D+	**67 - 69%**
D	**63- 66%**
D-	**60 - 62%**
E	**0 - 59%**

Academic Dishonesty of any kind will not be tolerated. If you are caught cheating once on any quiz or exam you will earn a zero on that quiz or exam, lose the right to have your lowest quiz scores dropped and lowest homework scores dropped, your final grade will be dropped one letter grade, and a Violation of Academic Integrity will be filed. If you are caught cheating more than once, you will fail the course. The following list, while not exhaustive, gives examples of what would be considered cheating: working with any other person on a quiz or exam, using "tutoring" websites to obtain solutions, using math apps/code to obtain solutions, using communication apps/texts/discord/groupme/whatsapp etc, to discuss quiz or exam problems, going to the bathroom to use your cell phone to look up answers, etc. You are bound by the university's academic integrity policy.
https://www.albany.edu/undergraduateeducation/academic_integrity.php

New York State Education Law (Section 224-A) requires campuses to excuse, without penalty, individual students absent because of religious beliefs, and to provide equivalent opportunities for make-up examinations, study, or work requirements missed because of such absences. I will work directly with you to accommodate religious observances, provided that you notify me in a timely manner.

I reserve the right to adjust the course syllabus if there is a change in course mode (ie. if we are forced to switch from in-person instruction to online asynchronous or synchronous instruction).

Topics to be Taught:
- Limits
- Continuity
- Differentiation
- Applications of differentiation
- Antiderivatives
- The definite integral
- Transcendental functions

AMAT/TMAT 119 Honors Calculus II
Spring 2020, Class Number 8544/8545 (4 credits)
MWF 11:30-12:25, W 12:35-1:30 BB 209

Professor: Steven Plotnick (splotnick@albany.edu)
Office: ES 123B (442-4615)
Office Hours: MWF 9:20-10:15 and by appointment

Text: **Calculus of a Single Variable**, 8th ed., James Stewart
Prerequisite(s): A MAT 118, a grade of A in A MAT 112, or permission of instructor.

Course Description: This course continues the study of calculus, one of the great intellectual achievements of the 17th century. We pick up where Math 112/118 leaves off. (Prerequisites: Math 112 or 118, or a sufficiently high grade on the AP exam) After a short review, we will discuss applications of the definite integral to geometry, physics, and probability, along with specific techniques for finding integrals. We will learn about polar coordinates and parametric curves, and we will spend a good deal of time on infinite sequences and series. We will cover chapters 6, 7, 8, 10, and 11.

Learning Objectives: The student who successfully completes this course will understand a variety of applications of calculus to geometry and the physical sciences, and will know how to carry out these calculations. He/she will also understand how and why we attempt to represent functions by 'infinite' polynomials, and will begin to develop an appreciation for how their calculator determines certain functions.

This course satisfies the Mathematics requirement of the General Education program. The specific learning objectives for general education courses in mathematics are:

1) *the ability to decipher, interpret, and draw conclusions from formal or mathematical models such as formulas, graphs, and/or truth tables, and an understanding of the concepts used in such models*
2) *the ability to formulate and/or represent problems in manners appropriate to mathematical, statistical, or logical analysis*
3) *the ability to employ appropriate mathematical computations, statistical techniques, or logical methods to solve problems and/or draw conclusions from data*
4) *the ability to evaluate results and recognize the limits of methods and/or models within the context of the discipline, as appropriate*

This is an honors class, so we will do more than just cover the standard material (as in Math 113). We will present more proofs, try to develop an appreciation for the theoretical underpinnings of calculus, and look at interesting/challenging applications.

There will be two in-class tests, a final, and numerous quizzes. Dates for the tests will be announced in class, at least a week in advance. Needless to say, it is expected that you take the exams at the scheduled time except in (documented) cases of family emergencies or serious illness. If there is a reason why you cannot take a test, you are expected to contact me **in advance** of the test. Quizzes will be given about once a week, generally on Friday, and will be announced in advance. There are no make-up quizzes, but I will drop your lowest two quizzes. Students who take the homework seriously should do well on quizzes.

Homework will be assigned on webassign.net. This will require an access code. If you bought a new book, it should have come with an access code. If not, these can be purchased online. We will start using this system almost immediately, once I give you the information you need to get started on this website. Beside the fact that it is being graded, you will find that doing the homework is essential to learning this material. Trust me: Nobody learns mathematics at any level without spending a lot of time doing problems.

Homework will count 10% towards your grade. The two in-class exams will each count 20%, as will the quizzes. The final will count 30%.

Course Grade Scale: **A** 93-100%, **A-** 90-92%, **B+** 87-89%, **B** 83-86%, **B-** 80-82%, **C+** 77-79%, **C** 73-76%, **C-** 70-72%, **D+** 67-69%, **D** 63-66%, **D-** 60-62%, **E** 0-59%

For additional help, the mathematics department maintains a Tutoring Room, ES 138, which is available to all students in 100-level courses on a first-come, first-served basis. Students should feel free to use the Tutoring Room for assistance in coursework and homework. Of course, I am available during office hours (or by appointment if you cannot meet me during office hours) for help. Please don't hesitate to come by

Students are, of course, expected to follow the University's policy on academic integrity. Go to http://www.albany.edu/undergraduate_bulletin/regulations.html. Also, look at the University's Medical Excuse Policy: http://www.albany.edu/health_center/medicalexcuse.shtml.

Out of respect for other students and the instructor, it is expected that students arrive on time, turn off cell phones, and refrain from emailing, texting, tweeting, facebooking, instagramming, snapchatting, etc. during class. This includes all social media techniques invented after this syllabus is written.

Topics to be Taught:
- Applications of the definite integral to geometry
- Physics, and probability, and specific techniques for finding integrals
- Polar coordinates
- Parametric curves
- Infinite sequences and series

AMAT 215 Ordinary Differential Equations Spring 2022

Instructor: Daniel Wood, **Email:** dwood@albany.edu
Class Monday, Wednesday, and Friday 10:35 a.m. – 11:30 a.m. in ES146
Office Hours: Monday, Wednesday, and Friday 12:00 p.m. – 1:30 p.m. in ES210

Textbook

Text: A First Course in Differential Equations with Modeling Applications by Dennis G. Zill, ISBN: 1305965728

Course Description

Ordinary Differential Equations This class is an introduction to ordinary differential equations covering topics such as definitions and classifications of ordinary differential equations, linear differential equations, systems of differential equations, separable equations, applications of differential equations, boundary value problems, and existence and uniqueness of solutions.
Prerequisites: AMAT214 (multivariable calculus)

Student Oriented Learning Objectives

After completing *Ordinary Differential Equations* students will be able to:

- understand differential equations - what they are, how solutions behave, and different approaches to their study
- be able to solve differential equations
- be able to use them to model scientific problems

Course Structure and Evaluation

Homework Homework will be assigned weekly via Webassign. To register for this course, you will need the class key: **albany 2708 7204**.

Quizzes We will have a quiz each week on the final meeting of the week. The subject matter of each quiz will correspond to the material covered earlier that week.

Exams We will have two in class exams and a final exam for this course. The in class exams are tentatively scheduled for mid March and mid April at this point, with precise dates announced in class.

Academic Integrity Collaboration with classmates is encouraged during studies and homework. During exams, however, there will be no collaboration - you must submit your own work. More information regarding plagiarism and other inappropriate academic activities can be found at this link.

Medical Excuse Policy The conditions required to obtain a medical excuse from a deadline or assignment can be found at this link.

Univeristy Religious Observance Policy Absence due to religious observance: Refer to New York State Education Law (Section 224-A), whereby campuses are required to excuse, without penalty, individual students absent because of religious beliefs, and to provide equivalent opportunities for make-up examinations, study, or work requirements missed because of such absences. Faculty should work directly with students to accommodate religious observances. Students should notify the instructor of record in a timely manner.

Grading scheme Your grade will be determined as follows:

Homework	15 %
Quizzes	20 %
Exams	40 %
Final	25 %

Letter grades will be based on the accumulated points according to the cut-offs

A range = 90 – 100% B range = 80 – <90% C range = 70 – <80% D range = 60 – <70% F range= 0 – <60%

Study Recommendations

- The student should stay engaged with the material, read ahead and attempt practice problems in upcoming sections in order to adequately prepare for class. Being proactive with study habits will help you get the most out of each lecture. On the homework and exams, answers will be required to be demonstrative, displaying the work and reasoning behind a solution - as if you are explaining the problem to someone who does not understand the problem. As such, you should strive to understand the methods behind each problem.
- This is a math class – we will do some calculations, but we will also explore and verify (prove) concepts leading to this calculations. You need to understand the concepts, not only memorize the methods. Test questions will not be the same as homework or in-class problems. Memorization is not going to help you to decide which method(s) to use in a problem. Proficient algebra skills are a prerequisite.
- Learning mathematics requires steady and persistent effort! New material will be presented in each lecture. It is important to read the text, both before and after coming to class. Homework assignments for each section should be done after that section was presented in class and before the next lecture. Do not wait to begin studying until the exam.
- Be proactive in addressing questions from the material - if you are not understanding some of the material, feel free to reach out to me with questions sooner rather than later in order to address the issue and allow your studies to progress smoothly.

Topics:
- definitions and classifications of ordinary differential equations
- linear differential equations
- systems of differential equations
- separable equations
- applications of differential equations
- boundary value problems
- existence and uniqueness of solutions

AMAT/TMAT 218 Calculus of Several Variables
Spring 2014, Class Number 8698/8699
MWF 9:20-10:15 BA 212, Th 9:10-10:05 ES 146

Professor: Steven Plotnick (splotnick@albany.edu)
Office: ES 123B (442-4613)
Office Hours: MWF 1:40-2:35 or by appointment

Text: **Multivariable Calculus, Early Transcendentals,** 7th ed, James Stewart

Course Description: This course is concerned with the generalization of basic one-variable calculus to higher dimensions, mainly dimensions 2 and 3. We start by describing vectors and then move on to vector functions of various kinds, including curves in space and functions of more than one variable. We will learn about partial derivatives and multiple integrals; the culmination of the course is the theorems of Green, Gauss, and Stokes, which describe generalizations of the fundamental theorem of calculus to higher dimensions. We will encounter numerous applications along the way - mainly, but not exclusively, to physics. Prerequisites for this course are one year of calculus, for instance, Math 112-113/119. Some of you may be taking linear algebra (Math 220) concurrently. This is fine, and the two courses will reinforce each other for the first few weeks, but it is **not** necessary.

Course Objectives: Learn the basics of vectors in 2 and 3 dimensions. Develop an appreciation for functions of more than one variable, partial derivatives, and their uses. Learn how to calculate multiple integrals and some of their applications. Finally, develop an appreciation for the theorems of vector calculus, and in particular their applications in physics.

We will cover chapters 12-16. There will be two in-class tests, a final, and numerous quizzes. Dates for the tests will be announced in class, well in advance. Needless to say, it is expected that you take the exams at the scheduled time except in (documented) cases of family emergencies or serious illness. If there is a reason why you cannot take a test, you are expected to contact me in advance of the test. Quizzes will be given about once a week, generally on Friday, and will be announced in advance. There are no make-up quizzes, but I will drop your lowest two quizzes. Students who take the homework seriously should do well on quizzes.

Exam	Material
Test 1	12, 13
Test 2	14, 15 (1st half)
Final	12-16

Homework will be assigned on webassign.net. This will require an access code. If you bought a new book, it should have come with an access code. If not, these can be purchased online. We will start using this system almost immediately, once I give you the information you need to get started on this website. Beside the fact that it is being graded, you will find that doing the homework is essential to learning this material. Trust me: Nobody learns mathematics at any level without spending a lot of time doing problems.

Homework will count 10% towards your grade. The two in-class exams will each count 20%, as will the quizzes. The final will count 30%.

Students need to be aware of the university's policy on academic integrity. Go to http://www.albany.edu/undergraduate_bulletin/regulations.html

Out of respect for other students and the instructor, it is expected that students arrive on time, turn off cell phones, and refrain from emailing, texting, tweeting, facebooking, instagramming, etc. during class. This includes all social media techniques invented after this syllabus is written.

Grade	Percent
A	>93
A-	90-02
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
E	<60

AMAT/TMAT 222: HONORS LINEAR ALGEBRA
SYLLABUS - FALL 2018

Instructor: Prof. Matt Zaremsky
Course meets: MWF 11:30–12:25am in ES-143
Course Website: `http://www.albany.edu/~mz498674/teaching.html`

Office: ES-136A
Email: mzaremsky at albany dot edu
Office hours: MWF 10:25–11:20am and by appointment, in my office.

1. Textbook

David C. Lay, with Steven R. Lay and Judi J. McDonald, Linear Algebra and Its Applications, fifth edition, Pearson, 2016.

You have the option to buy the textbook together with access to MyMathLab – the online homework and grading system used for this course – or to buy only the access to MyMathLab. Access to MyMathLab includes access to an electronic version of the textbook. See link here.

2. Course description

"Honors version of linear algebra. Same topics as AMAT 220, but topics are covered in more depth and with more emphasis on theory. This course is for students with more than average ability and more than average interest in mathematics."

3. Course objectives

Master row reduction of matrices and become proficient in using it for various applications; develop a strong understanding of vector spaces and linear transformations, and their connection to matrices.

4. Prerequisites

A grade of A in AMAT 113 or AMAT 214 together with permission of the instructor, or a grade of B+ in AMAT/TMAT 119 or AMAT/TMAT 218.

5. Homework

Homework will be done online, with the MyMathLab program. You'll need to get access (see link above). Assignments will be due every Wednesday at 11:20am, so ten minutes before class (any deviations from this will be announced ahead of time). No homework is due during the first week of class. The lowest homework will be dropped. In order to enroll in our course in MyMathLab you will need the course ID, which is

zaremsky49953

Instructions on how to register are here.

6. Quizzes

There will be weekly quizzes every Wednesday during class (any deviations from this will be announced ahead of time). On weeks with an exam there will be no quiz. Also, the lowest quiz score will be dropped. In general a given Wednesday's quiz will cover the material that was on the homework due that day. The quiz during the first week of class will be "diagnostic".

7. Exams

There will be a midterm exam and a final exam. The midterm will be on a Wednesday, during class, on a date TBD. The final exam is TBD.

8. Grading policy

Homework: 15%, Quizzes: 25%, Midterm 1: 25%, Final Exam: 35%.

9. Make-up policy

There will be no late homework accepted for any reason (it will be posted so far in advance that this will not be an issue, and I'll drop the lowest one). There will be no make-up quizzes whatsoever (too much of a logistical headache) but this is why I will drop the lowest quiz score (so if you miss one it's not a big deal). If you know in advance you will need a make-up exam (and you have a legitimate reason: see here) let me know as soon as possible and we'll work something out. This also holds if you unexpectedly miss an exam due to an emergency. If you unexpectedly miss an exam and don't have an acceptable excuse then there's nothing I can do.

10. Academic integrity

See here for information about academic integrity. I should draw your attention to the part that says, "student claims of ignorance, unintentional error, or personal or academic pressures cannot be excuses for violation of academic integrity."

11. Topics

- Row reduction of matrices and using it for various applications
- Vector spaces
- Linear transformations
- Connections to matrices.

12: Course Grading Scale

93-100 A
90-92 A-
87-89 B+
83- 86 B
80-82 B-
77-79 C+
73- 76 C
70-72 C-
67-69 D+
63- 66 D
60-62 D-

AMAT 300 INTRODUCTION TO PROOFS

FALL 2020 (Class # 6504)
MWF 10:35-11:30 via Zoom

Professor: Steven Plotnick (splotnick@albany.edu)
Office: ES114 442-4615
Office Hours: By Appointment

Text: Book of Proof, 3rd Edition, by Richard Hammack. Available as a **FREE** pdf download at: http://www.people.vcu.edu/~rhammack/BookOfProof/ If you wish, you can buy a physical copy of the text online. For example you can buy one on Amazon for $20-30, depending on whether you want hard cover/paperback, new/used, etc..

Prerequisites: This course is restricted to math majors, so you should have received a C or better (hopefully, better) in Calculus 2 or 3. Normally, students will take this course concurrently with Calculus 3 (AMAT214) or linear algebra (AMAT220), or both, and also with UUNL299, the information literacy course for math majors.

Course Description: from the course catalogue: Introduction to the methods of higher mathematics, with emphasis on how to read, understand, discover, and write proofs. This course will require a significant amount of written and oral presentation.

Topics: Basic logic, sets, functions, relations, mathematical induction, countable and uncountable sets, and elementary number theory.

Course Objectives: A student who successfully completes this course will be prepared for higher level, more theoretic mathematics courses. They will understand how to read, understand, and write simple proofs. In addition, they will learn the basics of counting, functions and relations, and the concepts of cardinality.

Grading:

Writing Assignments:	25%
Oral Presentations	10%
Quizzes	15%
Midterm	25%
Final	25%

Course Grade:

	94-100 A	90-93 A-
87-89 B+	83-86 B	80-82 B-
77-79 C+	73-76 C	70-72 C-
67-69 D+	63-66 D	60-62 D-

There will be (almost) daily writing assignments. The goal is to learn to write (correct!) mathematics in an organized fashion. As the semester progresses, assignments will tend to be longer and more challenging. Assignments will be evaluated for both correctness and style, and will need to be revised, based on written feedback, until satisfactory. There will also be short quizzes on (most) Fridays, based on assigned homework. Homework problems will be assigned daily, some of which will be collected as writing assignments, others will be discussed in class, and homework problems will often find their way onto quizzes.

After the first few weeks of the semester, students will start to give oral presentations. There may be some technological difficulties with this, but hopefully we will figure it out. Presentations will be approximately 10 minutes, after which the speaker will answer questions from the audience. Presentations will be evaluated on mathematical validity, speaking style, clarity, and interaction with the audience. Students will receive feedback from the instructor.

My hope is to make this ONLINE course feel as much like a 'regular' course as possible. Lectures will be given via zoom, MWF 10:35-11:30, and will be recorded. So, while it is not absolutely essential that you come to every class, I am hoping that most of you will come to all the lectures, so that you don't miss the

back-and-forth, Q & A, of in-person classes. Course content will be on blackboard, as will homework and exams.

Students are, of course, expected to follow the University's Standards of Academic Integrity (http://www.albany.edu/undergraduate_bulletin/regulations.html) and Medical Excuse Policy (http://www.albany.edu/health_center/medicalexcuse.shtml).

Introduction to Combinatorics. AMAT 328
Fall 2019

Credit hours: 3.

Course description. Combinatorics is a subject of increasing importance, owing to its links with other parts of pure and applied mathematics, as well as computer science. Combinatorial structures arise both in abstract areas such as group theory and geometry, and applied areas such as optimization, networks, and statistics. Thus, they have applications to both calculations in pure mathematics and to solving real-life problems. Due to the advent of computers, which are ideally suited to manipulating combinatorial structures, this subject has become one of the fastest growing areas of mathematics. This course is a broad introduction to combinatorics, with emphasis on both the theory (the enumeration of various structures and their properties) and its applications, including algorithms.

Objectives upon completion of the course. The students will learn about: the main discrete structures, methods of enumeration (recurrence relations, generating functions, inclusion-exclusion), the fundamentals of graph theory, various important combinatorial algorithms, and their applications. They will be able to use these structures and algorithms to solve related problems, including real-life problems. They will also be able to program some of the algorithms.

Prerequisites. AMAT 221 or AMAT 299.

Instructor. Dr. Cristian Lenart, Office - ES-116A, Phone - 442-4635, `clenart@albany.edu`,

Class meets TTh 11:45 am – 1:05 pm, ES-139.

Textbook. Richard A. Brualdi, Introductory Combinatorics (5th Edition), Pearson, 2009, ISBN-10: 0136020402, ISBN-13: 978-0136020400.

Syllabus. The pigeonhole principle. Basic discrete structures and their enumeration: permuta-tions, combinations, partitions, Catalan numbers. Generalizations of the binomial theorem. The principle of inclusion-exclusion. Recurrence relations and generating functions. Introduction to graph theory: Eulerian walks, Hamiltonian cycles, trees, network flows, matchings, coloring maps. *Note:* Not all the material in the mentioned texbook will be covered.

Homework. Homework is an essential part of this class. Homework assigned during one week will be collected at the end of the following week. Late homework is considered for half credit. Homework will be posted on the following website.

`https://www.albany.edu/~lenart/teach/amat328-5.html`

Exams. There will be two tests, on October 1 and November 5. The final exam will be on December 17, 1:00 pm – 3:00 pm, in ES-139; it will be cumulative. There will be revision classes before the tests and the final exam.

Grading. Full A-E grading. Your grade in this course is based on the final exam (30%), the two tests (35%), and the homework (35%). The overall score will be curved based on the class performance.

Academic integrity. Plagiarism during the tests or the final exam will result in failing the class; this includes the situation when two virtually identical papers are identified. Such violations may be also subject to penalties both outside the course. See

`http://www.albany.edu/undergraduate_bulletin/regulations.html`

for more information on the University's Standards of Academic Integrity and Attendance.

Absences. Attendance is required as part of your grade; you may miss 3 classes with no effect on your grade, but any absence after that will make your grade drop by a "notch" (for instance, from B to B−). Students will not be excused from a class or an examination or completion of an assignment by the stated deadline except for emergencies or other comparable situations; a proof is required. See also the University's Medical Excuse Policy, link below.

`https://www.albany.edu/health_center/medicalexcuse.shtml`

Absence due to religious observance. These are excused, and opportunities will be made available for make-up examinations, study, or work requirements missed because of such absences; see New York State Education Law (Section 224-A). Students should notify the instructor in a timely manner.

Office hours. The office hours are in ES-116 as follows: on Tuesday and Thursday between 10:10 am − 11:10 am, and on Tuesday between 1:10 pm − 2:10 pm. Meetings outside these times can be arranged by appointment. You need to make reasonable attempts at the homework problems before asking for any hints.

Tutoring. Beside the tutoring services available in the University, see the websites below; the first one contains a link (at the bottom of the page) to a tutoring service offered by the publisher.

`https://www.chegg.com/textbooks/introductory-combinatorics-5th-edition-9780136020400-0136020402`
`https://www.24houranswers.com/subjects/Mathematics/Combinatorics`

Important. You typically will have to spend twice as much time or more on studying outside of class than you spend class. In particular, it is very important to work regularly on exercises in order to test your understanding and in order to master the required techniques. Reading the book is considered part of the homework. The assigned homework represents a bare minimum amount of work needed, so you are strongly advised to work on other problems in the book. Those of you having difficulty are urged to contact the instructor as soon as possible (not just before the tests and exam), and to come to office hours. You are also strongly encouraged to actively participate in class and exchange ideas with the instructor and your colleagues.

Out of consideration for your fellow students' efforts to learn, and your instructor's efforts to teach, you are required to arrive on time for class and to remain seated (barring an emergency) until the class is finished. For the same reasons, **please turn off cell phones, do not send or receive text messages,** play video games, read material unrelated to class, sing, or otherwise goof off and distract other people in the room. Loud eating or drinking, repeated talking while the instructor or other students are talking, or ringing cell-phones or pagers are not allowed during the class. Repeated violations of any of the above rules shall be grounds for sanction or dismissal from the class.

Weekly topics.

Week	Sections Covered
Week 1	1.1-1.3,2.1
Week 2	2.2-3.2
Week 3	3.3-3.6
Week 4	4.1-4.2, 5.1-5.2
Week 5	5.3, Test 1

Week 6	5.4-5.6
Week 7	6.1-6.3
Week 8	6.4, 7.1-7.3
Week 9	7.4, 8.1-8.2
Week 10	Test 2, 8.3
Week 11	9.1-9.3
Week 12	11.1-11.3
Week 13	11.5, 12.1-12.2
Week 14	Review

Course Grade:

Grading Scale

A = 93-100%; A- = 90-<93%; B+ = 87-<90%; B = 83-<87%; B- = 80-<83%; C+ = 77-<80%; C = 73-<77%; C- = 70-<73%; D+ = 67-<70%; D = 63-<67%; D- = 60-<63%; E = <60%.

Probability and Statistics for Engineering and the Sciences

AMAT 370
Fall 2020 Section 6590

3 Credits

Instructor Information: Jesse Corradino, office in Earth Science building room 132B, office hours online Monday, Wednesday, and Friday 12:00-1:00 PM email address jcorradino@albany.edu

Modality and Class Schedule: The course modality shall be asynchronous lectures recorded on Zoom whiteboard, but the recordings will be made live each week on Tuesdays and Thursdays at 12:00-1:30 PM. Students participation and attendance is encouraged. I shall provide the Zoom meeting ID through email before the semester begins.

Required Textbook: *Devore Probability and Statistics For Engineering and the Sciences Ninth edition* Either the physical or online textbook is acceptable. We shall use webassign as our online class resource, where one's grades shall be recorded and homework made available. One is also able to purchase an online edition of the textbook in conjunction with access to the online homework system. It is to this textbook that I refer to as the online textbook above.

Prerequisites: A MAT 367 or I CEN/I CSI 210

Course Description Part I: Basic probability, conditional probability and independence, families of discrete and continuous random variables, expected values and variances, moment generating functions, bivariate distributions, Bayesian networks, law of large numbers and central limit theorem, normal, t, and chi-square distributions, confidence intervals and hypothesis testing and simple linear regressions. A MAT 370 is a one semester introduction to probability and statistics intended primarily for science or engineering majors who have completed two semesters of calculus. Students cannot apply both A MAT 362 and A MAT 370 or both A MAT 363 and A MAT 370 toward the requirements for a Mathematics major. A MAT 370 fulfills the probability/statistics requirement for the Mathematics BA. A MAT 367 and A MAT 370 can be one of the two sequences required for the B.S. in Mathematics. Students who expect to do graduate work in mathematics or statistics should take both A MAT 362 and A MAT 363, not A MAT 370. **Course Description Part II:** The first course description is taken from the university bulletin. This second description is meant to give you an idea of how the course will actually proceed. I divide this course into three parts. The first part covers chapters two, three, and four, in the required text. Broadly speaking, this part is an introduction to basic probability theory together with discrete and continuous random variables. I should mention looking at the STAM test requirements it seems like we cover all the variables required for that test. The second part of the class covers chapters five and seven upon joint distributions, random samples, the central limit theorem, as well as confidence interval methods. Part three, the final part of the course, will cover chapters eight and twelve in the required text. The final topics we therefore cover are those of hypothesis testing and linear regression.

Exam Policy: There shall be one exam after each part of the course

mentioned in course description part two, above. The exams corresponding to parts I and II provide the scores used to compute the in-class exam portion of your grade, below. The exam corresponding to part three of the course is used to compute the final exam portion of your grade, below.

Homework Policy: As mentioned alongside the textbook heading, we shall use the online course resource webassign to assign and grade homework. I shall assign homework at the end of each section we complete in class together. To sign up, visit www.webassign.com and either enter or purchase an access code. Once you have signed up, you will need the following course key to join our class: **albany 4663 8520**

Excuse Policy: We adhere to the university guidelines for academic integrity pertaining to medical excuses etc.

Academic Integrity: Obviously cheating and dishonesty are forbidden in this class. More details on the university's academic integrity policy can be found at www.albany.edu/undergraduatebulletin/regulations.html

Disability Accommodations: Accommodations are provided to students with documented disabilities. If one has a documented disability that requires accommodations during in-class examinations or some other aspect of the course, please notify the disability resource center at dr@albany.edu. The DRC shall alert me that accommodations are required and they shall be provided in accordance with the university policy.

Religious Observances: Absence due to religous observances are permitted by New York State Law. One is allowed to be excused from class without penalty to observe their religious practices. Opportunities to make up work missed because of religious observances will be provided by the instructor. Any accommodations requested by the student of the instructor for religious observance shall be provided.

Classroom Behavior: Please do not have any cellphones out during class.

Grade Distribution:

- 25 % Homework
- 50 % In-Class Exams
- 25 % Final Exam

Grading Scale: A 94-100 %, A- 93-90 %, B+ 89-87 %, B 86-83 %, B- 82-80 %, C+ 79-77 %, C 76-73 %, C- 72-70 %, D+ 69-67 %, D 66-63 %, D- 62-60 %, E less than or equal to 59 %

Course Objectives: The objectives of this course are to familiarize students with the major distributions of statistics in the sense of which distributions are most commonly used in industry and applications. Besides such familiarization, one also learns of major statistical techniques in the same sense of major as above. For example, we study the central limit theorem, null hypothesis testing, anova and linear regressions. By the end of the course, a student should be able to competently recognize which distribution is appropriate to solve a problem or to use in an application and what other additional techniques may be useful and how those techniques can be used.

I. Course Title: AMAT 403 Life Contingencies I

II.Location and Time: Tuesdays and Thursdays 10:30 am –11:50 am, via zoom.

III. Instructor: Karin Reinhold, PhD, Associate Professor of Mathematics
Office: ES 132D
Office Hours: Tuesday and Thursday noon-1, Wednesdays 1-2pm, via zoom.
Additional time by appointment.
E-mail: reinhold@albany.edu
Telephone:

IV. Course Description: Treatment of single and joint lives including mortality functions, various kinds of annuities and life insurance, premiums, reserves and standard actuarial notations for these concepts.

Prerequisite: Grades of C or better in Mat 301, 362 and 363.

Description of the Course: In conjunction with Mat 464 and Mat 404 these courses cover the content of SOA Exam LTAM and the life contingencies material on CAS Exam 3L.

Topics covered: life insurance, survival models, life tables, insurance benefits, annuities, and premium calculation.

Course Objectives: The purpose of each item in the syllabus is to develop the candidate's knowledge of the theoretical basis of certain actuarial models and the application of those models to insurance and other financial risks.

- A thorough knowledge of calculus, probability, and interest theory is assumed.
- Knowledge of risk management at the level of Exam P/1 is also assumed.

The course is structured to meet the educational needs of students who major in Actuarial Studies and/or are preparing for the SOA Exam MLC / CAS Course 3L, jointly administered by the Society of Actuaries (SOA) and the Casualty Actuarial Society(CAS).

Our goal is to provide an understanding of the fundamental concepts of life contingencies, and how these concepts are applied in calculating present and accumulation values for various streams of cash flows as a basis for future use in: reserving, valuation, pricing, asset/liability management, investment income, capital budgeting and valuing contingent cash flows.

The primary objective is for students to understand the learning outcomes at a high enough level in order to pass the SOA/CAS Exam. We also hope to develop effective study skills that will help students prepare forfuture professional examinations, to improve presentation and communication skills, andto increase personal responsibility.

Learning Outcomes

- Understand how decrements are used in insurances, annuities, and investments.
- Understand the models used to model decrements used in insurances, annuities, and investments and calculate probabilities based on those models.

- Understand the non-stochastic interest rate models used to calculate present values and accumulated values of cash flows and calculate present values and accumulated values of cash flows.
- Understand the models used to model cash flows of traditional life insurances and annuities and calculate the present values of the cash flows.
- Understand reserves as liabilities.
- Understand net (benefit) reserves and calculate net (benefit) reserves for traditional life insurances and annuities.
- Understand how concepts presented for traditional life insurances and annuities extend to non-interest sensitive insurances other than traditional insurances (examples include: disability income insurance, product warranty insurance, defined benefit pension plans, and health insurance).
- Understand the models used to model cash flows for basic universal life insurances and basic variable annuities and calculate contract level values.
- Understand the models used to model cashflows of basic universal life insurance and basic variable annuities and calculate the present values of the cash flows.
- Understand the net (benefit) reserve for and calculate net (benefit) reserves for basic universal life insurances and basic variable annuities.

- Understand the relationship between expenses and gross (contract) premium and calculate contract level values based on the gross (contract) premium for life insurances and annuities, including gross (contract) premium reserve and asset share.

VI. Instructional Material

Textbook: Actuarial Mathematics for Life Contingent Risks (2nd Edition), by Dickson, Hardy, and Waters, is published by Cambridge University Press, is available from the University bookstore, and is required.

Chapters 1-7,will be covered in AMAT 403 and chapters 8 - 11 will be covered in AMAT 404.

Supplementary Notes for Actuarial Mathematics for Life Contingent Risks. This document can be downloaded at no cost from the Cambridge UniversityPress website. http://www.cambridge.org/gb/knowledge/isbn/item2703201/?site_locale=en_GB&display=genresources&anchor=true

Calculator/Excel: Currently the Society of Actuaries (SOA) approves the following calculators: Texas Instruments BA-35, BA II plus, BA II plus Professional,30X, and/or 30Xa. I don't require any but a familiarity with Excel will be handy in a couple of assignments.

Other Study Materials: Visit www.actexmadriver.com or www.actuarialbookstore.com for various study aids.

Study Notes Available from the Society of Actuaries: www.soa.org. These include sample questions and old examinations (Course 3).

VII. Instructor Goals for Students

In addition to mastering the mathematical content described in Learning Outcomes, I hope that students

1. be positive contributors in class,
2. are honest with self and others,
3. take responsibility for learning the course content,
4. improve self, and
5. for those wishing to become actuaries, master the material well enough to progress through the professional examination system and become valuable members of the actuarial profession.

Behavior that I wish to encourage:

- honesty (with self, peers, me),
- learning/understanding (e.g. defining variables, you are the audience),
- discovering and challenging self and peers (names, strengths, weaknesses),
- helping class,
- modeling productive behavior,
- exceeding expectations,
- participation,
- communication, and
- taking responsibility (no excuses).

Behavior that I wish to discourage:

- dishonesty (claim understand in class and while doing homework, but not on exams),
- memorizing formulas,
- looking at solutions prior to attempting yourself,
- abusing solutions manuals.

VIII. Instructor Specific Course Policies:

A. **Make-up work:** Make-up work is a rare event. If you must miss a scheduled exam, you must make alternative accommodations with me (typically taking theexam before it is scheduled).

B. **Cheating:** It is bad, do not do it. Cheating during an examination will result in a letter grade of F. For exams online, we will follow the honors code.

C. **Class Distractions:** You will make the necessary arrangements so that cell phones, watch alarms, mechanical erasers and the like do not disturb you and/or your class mates during class.

D. **Learning Situations Outside of Class:** Following presentations in class is a good start to understanding, being able to complete problems on your own shows a higher level of awareness, and being able to explain solutions to others demonstrates exceptional insight. Therefore, you are encouraged to form study groups. I am available during class, during scheduled office hours, and by appointment. I hope that you feel comfortable receiving help from me in a timely manner. I look forward to helping those motivated students who have attempted their homework. Bring your work into class and or office hour to discuss your confusion.

E. **Extra Credit:** It is a rare event. Extra work is not a substitute to learning the material in a timely fashion. It is inappropriate for you to request extra credit work.

F. **Professionalism:** Students are expected to maintain appropriate behavior in the classroom and other activities that reflect the actuarial program and university.

IX. University Policies and Services

- **Honor Code:** The core values of the University at Albany are learning, discovery, freedom, leadership, individual opportunity and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, fairness, and respect toward peers and community.
- **Students with Disabilities:**The University at Albany provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, students with disabilities should contact the Disability Resource Center: 442-5490 http://www.albany.edu/disability/

- **Policy on Academic Dishonesty:** Students who violate university rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failing in the course and/or dismissal from the University. For clarification and interpretation of the regulations, students should contact the Office of the Vice Provost for Undergraduate Education, Lecture Center 30.
- **UAlbany Division of Student Success:** http://www.albany.edu/undergraduate_bulletin/student_affairs.html
- **UAlbany Counseling Center:** Suite 104 400 Patroon Creek Blvd Albany, PHONE (518) 442-5800 Email consultation@albany.edu, or visit the website at www.albany.edu/counseling_center/The Middle Earth Café website is a non-commercial, non-profit service of the Middle Earth Peer Assistance Program, an agency staffed by undergraduate students and supervised by professional psychologists at the University at Albany Counseling Center. The site aims to provide quality information about mental health and behavioral issues affecting college students in order to support our students. We also wanted to provide an alternative to the Middle Earth telephone hotline (518-442-5800) for students who prefer to communicate with us online.

X. Delivery System:

This is a synchronous course which means that it has days, as stated at the beginning, where the whole class meets. It is important that you attend these meetings because we will be working on problem sets and you can discuss with me approaches to the problems right there during the meeting. The recordings of these meetings will be available on Blackboard.

This is your course. The responsibility of learning the course objectives and attaining your learning outcomes is entirely your responsibility.

We'll be interacting on zoom during class time and I will be available for office hours. I am here to help you learn the content and guide you. Videos of the class will be available afterwards on Blackboard.

Drills, assignments and exams will be posted on Blackboard.

It is my hope that you develop a working group with class mates with whom you can consult and share ideas. A few of the assignments are group projects that will require teamwork.

The learning journey and development of self-inquiry is your own and what you make of it.

XI. Grading Information

A. Definition of Letter Grades: The following scale will be used as a guide to assign grades at the end of the term. Be careful using this scale on any individually scored work. Some exams/assignments are easier (most students score substantially higher) than other exams/assignments. It is your job to maximize your total points. A student's final class average is the weighted average of their raw average scores based upon graded work.

- [90%,100%] A/A-Achievement of distinction with an unusualdegree of intellectual initiative
- [80%,90%) B+/B/B-Superior work
- [70%,80%) C+/C/C-Average knowledge attainment
- [60%,70%) D+/D/D-Unsatisfactory, but passing
- [0%,60%) F Failing

B. Assessment During the Term:

- From the teacher - students will receive feedback on their homework, while working in groups, during question and answer periods, during office hours, and during exams;
- From other students – during study sessions and projects;
- From oneself – while working on homework problems, in-class examinations, while discussing these concepts with others, and on the comprehensive final examination.

C. Homework:

As mentioned previously, my goal is expose topics of actuarial models to UAlbany students. I trust our goals include demonstrating content proficiency by obtaining a passing score on SOA Exam LTAM and improved communication skills. We consider the prompt and accurate completion of homework to be the single most important factor in student learning. It is my expectation that students study for this class (and the professional examination) as a model for future study. I recommend that students keep (and bring to class) a homework notebook of all assigned problems. You may choose to keep some notes, other exercises, sample examinations, projects, this syllabus, and etcetera with the notebook.

Assigned Problems: One of your goals should be to attempt and solve all appropriate homework problems (from this text and elsewhere). If specific exercises will be assigned and collected, they will be announced in class and in Blackboard. Assigments consist of Drill problems to practice basic skills learned (done in Blackboard) and sets of problems for practice. I will be collecting some of these problems. They tend to have a higher level of difficulty than the drill problems and so we'll be going over how to approach

problem in class.

D. Typical Point Scale:

- Exam 1, 2 & 3: 100 points each (300 pts total)
- Drills and assignments, other: 200 pts

Penalties:

- Late Work 25% if complete within one day, 50% complete within a week, but after a day100% if complete after one week.
- Cheating on an Examination Course grade is F.

E. Attendance: It is your responsibility to be aware of what was covered in class on a day that you had to miss a class. Be advised that there is no makeup for activities missed on a day that you did not come to class. There is no reason to miss an exam other than getting sick (bring note from doctor), being on a team that has a game at the same time an exam is given (bring a note from your coach), or a death or serious illness in your family (bring a note from your family). In the event you cannot attend/take an exam, you must notify me in advance, otherwise your grade for that exam will be 0. You can contact me by phone (leave a message if I'm not in), stop by my office (leave a note if I'm not in) or send me an e-mail.

F. Academic Integrity: I expect you to behave with the highest standard of academic integrity in all graded work for this course. This means that I expect you to treat all graded assignments as work to be conducted privately, unless otherwise instructed.

For more detail about UAlbany's Standards of Academic Integrity:

http://www.albany.edu/undergraduate_bulletin/regulations.html

Discussion of home work problems is permitted and encouraged. But you have to write your problems in your own words. If you work out problems with other students, do not copy the answers. Instead, go take a 30-minute walk, and then write up the answer on your own without the aid of other people. Copying work that is not yours is plagiarism, even if the work was done as part of a discussion of a problem. Sharing your work with another student on an individual assignment is a violation of the academic integrity policy called "facilitating academic dishonesty." This violation is as serious as any other violation of the academic integrity policy. In general, you are permitted to discuss an assignment with other students, but you should write your own assignments. You should not share your individual work with any other student by electronic means because this encourages the copying or stealing of ideas (i.e.,

plagiarism). You should not share your group work with any other group by electronic means because this encourages the copying or stealing of ideas.

Group Work: All group members must sign the front page of assignments to certify that

- all members participated in the assignment
- no member plagiarized or cheated on the assignment
- no member facilitated academic dishonesty by inappropriately sharing this assignment with others. If you are allowed to discuss assignments in a group, use the rule described above: If you work out problems with other students, do not copy the answers. Instead, take a 30-minute walk, and then write up the answer on your own without the aid of the group work. Copying work that is not yours is plagiarism, even if the work was done as part of a discussion of a problem. Graded assignments will be explicitly designated as "group" or "individual."
- For group assignments, you will work on the assignment within your team but may not share information with any other team.
- For individual assignments, you can discuss problems with other students but you must write your own version, in your own words.
- For Exams, you will work individually, without consulting with other students or outside sources.

XII. Schedule

Changes: This syllabus is subject to modification. Topics covered may change according to the amount of material we are able to cover and practice during class time. Any changes to exams will be announced in class.

AMAT 403 Tentative Schedule

- Aug 25: Syllabus & quick intro: §2.1-2.3 Survival models, force of mortality. HW=2.1 a-d
- Aug 27: §2.4 Actuarial Notation #§ 2.5 Mean and Standard Deviation. Practice notation with simple models. HW: 2.1 e-g, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.10, 2.12, 2.13, 2.14
- Sept 1: practice actuarial notation: Ex2.6 Makeham formula. Compute the survival function. Ex 2.12 § 2.6 Curtate Future Lifetimes. Expected Complete Future Lifetimes HW: 2.5, 2.6, 2.7, 2.8, 2.10, 2.12, 2.13, 2.14
- Sept 3:(Last day to drop w/o a W) § 3.1 Life Tables§ 3.2 Fractional age assumptions
- Sept 8: § 3.4 National Life Tables § 3.7 -3.9 Select and ultimate
- Sept 10: § 4.1 -§ 4.4 Assumptions and Valuation of Insurance Benefits

AMAT 404 Life Contingencies II - Spring, 2020 - 3 Credits

MWF 10:25 A.M. - 11:20 A.M. in ES 143.
Instructor: Professor Martin Hildebrand
Office: ES 137A
Office Hours: By Appointment
Phone: 518-442-4016
E-mail: mhildebrand@albany.edu
Text: *Actuarial Mathematics for Life Contingent Risks*, 2nd ed, by Dickson, Hardy, and Waters.
Prerequisite: Mathematics 403 or 503A.

Course Description

This course provides further concepts related to life contingent risks for those students who have had a semester-long course on life contingent risks. These concepts include multiple state multiples, multiple decrements, joint life and last survivor models, dependent future lifetimes, and pension mathematics. This course is partial preparation for the actuarial exam LTAM.

Course Assignments and Attendance

There will be homework assignments most weeks. There also will be two in-class tests and a final exam. Late homeworks will be accepted only at the discretion of the instructor and possibly for reduced credit; otherwise homeworks not submitted on time will receive a score of 0. Missed tests or final exams will receive a score of 0 unless an acceptable reason for a make-up test or exam is provided. Be prepared to provide documentation of the reason, and make your request promptly. Note that the University Medical Excuse policy is available at http://www.albany.edu/health_center/medicalexcuse.shtml.

Stuidents should read the sections covered in the text and should explore additional sections of the text.

While I do not formally anticipate taking attendance, students are responsible for announcements made in class and material covered in class even when the students are absent. Be advised that frequent absences may reduce your learning and hence your grade.

The Blackboard online system may be used for some announcements and other course-related purposes. Details will be announced in class.

Cooperation and Academic Dishonesty

In general, students may discuss course material with each other. While some cooperation on homework is OK, students should not merely copy each other's answers. Students should not cooperate with each other or receive outside aid during tests or the final exam. Violations constitute academic dishonesty and are subject to both disciplinary sanction

and reduced or failing grades. Even after a test, posting the test online without permission may violate copyright laws.

Students should be aware of the Standards of Academic Integrity in the *Undergraduate Bulletin*; see

`http://www.albany.edu/undergraduate_bulletin/regulations.html`

Classroom Behavior

While I do encourage students to ask questions or to respond to questions I ask, students should be respectful of others in the classroom and should avoid disruptive behavior. In particular, ringing cell phones can be disruptive, and thus if you are carrying a cell phone, it should be turned completely off during classes (as well as tests and the final exam). If you believe that you have unusual circumstances which require you to be able to respond to cell phone calls even in class, please discuss the matter with me.

Grades

30%	Homework assignments
20%	Test 1
20%	Test 2
30%	Final Exam

I anticipate dropping the lowest homework score. The exact translation between the numerical average and course grade is at the discretion of the instructor. This course is graded on the A-E scale. Grades may be lowered in the event of academic dishonesty or for extreme examples of disruptive classroom behavior. Incomplete grades (I) will be provided only when the student has nearly completed the course but completion is delayed due to circumstances beyond the student's control (e.g. hospitalization during the final exam).

Students with Disabilities

Students with *documented* disabilities may request reasonable accommodation. Such students should be aware of the Disability Resource Center in Campus Center 130 (telephone 518-442-5490); this office can help disabled students obtain the needed documentation as well as help with the accommodations needed.

The points will be converted to percent scale grades, and then letter grade as follows:

A: 93–100 | A-: 90–92 | B+: 87–89 | B: 83–86 | B-: 80–82 | C+: 77–79

C*:73–76 | C-: 70–72 | D+: 67–69 | D: 63–66 | D-: 60–62 | E: below 60

* C is the minimum grade for S/U grade. Please refer to related UAlbany policies for details.

Disruptions to the Semester or Final Exam

In the event that emergency circumstances disrupt the semester or the final exam, the instructor may notify class members of course-related updates via announcements posted on Blackboard or via e-mail if warranted by the circumstances and possible under the circumstances. Such e-mail would be sent to the address provided to the instructor by MyUAlbany. Such emergency circumstances may require changes in the schedule or in the grading scheme.

Approximate Schedule

Week	Material Covered
1/22-24	8.2, 8.3
1/27-31	8.3, 8.4
2/3-7	8.5, 8.6
2/10-14	8.7, 8.8
2/17-21	8.9, 8.10
2/24-28	Test 1, 8.12
3/2-6	8.13, 9.2
3/9-13	9.3, 9.4
3/16-20	Spring break!
3/23-27	9.5, 9.6
3/30-4/3	9.7, 10.2, 10.3
4/6-10	Test 2, 10.4
4/13-17	10.5, 10.6
4/20-24	10.7, 12.2
4/27-5/1	12.3, 12.4
5/4-5	Review

The exact sections covered are subject to change. The dates of the test are approximate and subject to change. The date of the final exam is as announced by the Registrar's Office.

Learning Outcomes:
Students will expand their learning from A MAT 403 with emphasis on two or more lives in combination and on multiple causes of decrement. Students will understand population theory, multi-life statuses, multi-life functions, reversionary annuities, multiple-decrement functions, primary and secondary decrements, and applications of multiple-decrement functions.

Mathematics 467 - Continuous Probability and Mathematical Statistics
Fall, 2019 - 3 Credits

Class numbers 1909 (for AMAT 467)
MWF 1:40-2:35 P.M. in ES 245.
Instructor: Professor Martin Hildebrand
Office: ES 137A
Office Hours: By Appointment
Phone: 518-442-4016
E-mail: mhildebrand@albany.edu

Course Description: One and two-dimensional calculus applied to probability. Continuous random variables in one and two dimensions, including the normal, bivariate normal, exponential, gamma (including chi-square), and beta. Density functions of transformations of random variables. Moment generating functions, weak law of large numbers, central limit theorems, convergence of random variables. Maximum likelihood and unbiased estimators. Confidence intervals, mainly for normal means and variances.

Text: *Introduction to Mathematical Statistics*, 7th or 8th edition, by Hogg, McKean, and Craig.
Prerequisite: AMAT 214, AMAT 220, and one of AMAT 362 or 367

Material Covered and Learning Objectives

This course covers continuous probability and applications of continuous probability to statistics. Students completing this course should understand density, distribution, and moment generating functions for continuous random variables and how to use such functions to find various quantities, transformations of continuous random variables, recognize certain distributions (e.g. gamma, chi square, and t distributions) important in statistics and relations between some of these distributions, and some statistical inferences including confidence intervals, among other things.

Course Assignments and Attendance

There will be homework assignments most weeks. These assignments are important for the student to develop an understanding of the material in the course and reasoning related to this material. Some problems may be numbered differently the 7th and 8th editions; I intend to note the differences, but you still need to make sure you are using the numbers for the edition you have. There may be differences in assignments between AMAT 467 and AMAT 554. There also will be two in-class tests and a final exam. Late homeworks will be accepted only at the discretion of the instructor and possibly for reduced credit; otherwise homeworks not submitted on time will receive a score of 0. Missed tests and exams will receive a score of 0 unless an acceptable reason for a make-up test or exam is provided. Be prepared to provide documentation of the reason, and make your request promptly. Note the University's Medical Excuse Policy is available at
http://www.albany.edu/health center/medicalexcuse.shtml

You should read the sections covered in the text.
While I do not formally anticipate taking attendance, students are responsible for announcements made in class and material covered in class even when the students are absent. Be advised that frequent absences may reduce your learning and hence your grade.

New York State Education Law (Section 224-A) requires that individual students who are absent due to religious observances be excused and that such students be provided equivalent opportunities for make-up examinations, study, or work requirements missed because of such absences. Students should notify the instructor in a timely manner.

Cooperation

In general, students may discuss course material with each other. While some cooperation on homework is OK, students should not merely copy each other's answers. Students should not cooperate with each other or receive outside aid during tests or the final exam. Violations constitute academic dishonesty and are subject to both disciplinary sanction and reduced or failing grades. Also note that even after a test or an exam, posting the test or exam online without permission may violate copyright laws.

For more information on the University's Standards of Academic Integrity, look at `http://www.albany.edu/undergraduate_bulletin/regulations.html` or `http://www.albany.edu/graduatebulletin/requirements_degree.htm` .

Classroom Behavior

While I do encourage students to ask questions or to respond to questions I ask, students should be respectful of others in the classroom and should avoid disruptive behavior. In particular, ringing cell phones can be disruptive, and thus if you are carrying a cell phone, it should be turned completely off during classes (as well as tests and the final exam). If you believe that you have unusual circumstances which require you to be able to respond to cell phone calls even in class, please discuss the matter with me.

Grades

30%	Homework assignments
20%	Test 1
20%	Test 2
30%	Final Exam

Grade Scale: The following grading scale will be used to determine your grade.

A	(93%)	A-	(90%)
B+	(87%)	B	(83%)
B-	(80%)	C+	(77%)
C	(73%)	C-	(70%)
D+	(67%)	D	(63%)
D-	(60%)	E	(<60%)

I anticipate dropping the lowest homework score. The exact translation between the numerical average and course grade is at the discretion of the instructor. This course is graded on the A-E scale. Grades may be lowered in the event of academic dishonesty or for extreme examples of disruptive classroom behavior. Requests for incomplete grades (I) will be granted only under extenuating circumstances; see the Undergraduate Bulletin as appropriate, for more details.

Blackboard

I may utilize the Blackboard online system for certain things in the course; details will be announced in class.

Students with Disabilities

Students with *documented* disabilities may request reasonable accommodation. Such students should be aware of the Disability Resource Center in Campus Center 130 (telephone 518-442-5490); this office can help disabled students obtain the needed documentation as well as help with the accommodations needed.

Disruptions to the Semester or Final Exam

In the event that emergency circumstances disrupt the semester or the final exam, the instructor may notify class members of course-related updates via an announcement on Blackboard or via e-mail if warranted by the circumstances and possible under the circumstances. Such e-mail would be sent to the address provided to the instructor by MyUAlbany. Such emergency circumstances may require changes in the schedule or in the grading scheme.

Approximate Schedule

8/26-30	1.1-1.3
9/2-6	No class Mon.,1.4
9/9-13	1.5, 1.6
9/16-20	1.7, 1.8
9/23-27	1.9, 1.10
9/30-10/4	2.1, 2.2
10/7-11	Test 1, 2.3
10/14-18	No class Mon., 2.4-2.5
10/21-25	2.6, 2.7
10/28-11/1	3.1-3.3
11/4-8	3.4-3.6
11/11-15	Test 2, 4.2
11/18-22	4.3-4.5
11/25-29	4.6, no class Wed. and Fri.
12/2-6	4.7, Summary of Ch. 5, 6.1
12/9	Review

The exact sections covered are subject to change. The numbers on the right equate to chapters and subsections in our text. The dates of the in-class tests are approximate and subject to change. The date of the final exam is as announced by the Registrar's Office. I reserve the right to give portions of tests or the final exam as take-home.

Mathematics 468 - Mathematical Statistics
3 Credits

Spring, 2018
Class Numbers: 7983 (for math 468) and 7984 (for math 555).
MWF 1:40 P.M.- 2:35 P.M. in ES 108.
Instructor: Professor Martin Hildebrand.
Office: ES 137A.
Office Phone: 518-442-4016.
E-mail: mhildebrand@albany.edu
Office Hours: By Appointment

Text: Hogg, McKean, and Craig, *Introduction to Mathematical Statistics*, 7th edition.
Prerequisites: Mathematics 467 (for mathematics 468)

Topic Overview and Learning Outcomes

This course provides an overview of some aspects of mathematical statistics for students who have background involving probability and some basics of mathematical statistics. Topics covered include some probability distributions involved in statistical tests, hypothesis testing, maximum likelihood methods, sufficient statistics, optimal tests of hypotheses, and, if time permits, topics such as analysis of variance and regression and a brief introduction to Bayesian statistics.

Grading

Most weeks there will be a homework assignment. There also will be a midterm and a final whose formats are to be determined. It is possible that an exam may be take-home. It is possible that certain assignments may differ between math 468 and math 555.

The grading is as follows:

Homeworks	50%
Midterm	20%
Final	30%

Grade Scale: The following grading scale will be used to determine your grade.

A	(93%)	A-	(90%)
B+	(87%)	B	(83%)
B-	(80%)	C+	(77%)
C	(73%)	C-	(70%)
D+	(67%)	D	(63%)
D-	(60%)	E	(<60%)

The lowest homework will be dropped. The instructor reserves the right to make minor adjustments as he judges fit. This course is graded on an A-E scale, and the exact translation between the numerical average and the letter grade is at the discretion of the instructor.

Late assignments will be accepted only at the discretion of the instructor and possibly for reduced credit. Make-up exams will be given only for acceptable reasons. Be preprared to provide documentation for your request, and make your request promptly. Incomplete grades (I) will be issued only under circumstances described in the Undergraduate Bulletin or Graduate Bulletin, as appropriate.

Cooperation

Some cooperation on homework assignments is acceptable; however, you should not merely copy someone else's homework. You should actively work on all solutions you submit, and the solutions should be in your words and expressions. Unless indicated

otherwise, there is to be no cooperation on the midterm and final. Acts of academic dishonesty are subject to grade penalties and university disciplinary action. Students should be aware of standards of academic integrity contained in the Undergraduate Bulletin and the Graduate Bulletin, as appropriate.

For more information on the University's Standards of Academic Integrity, look at `http://www.albany.edu/undergraduate_bulletin/regulations.html` or `http://www.albany.edu/graduatebulletin/requirements_degree.htm` .

Attendance

Although I do not plan to formally take attendance, students are responsible for material and announcements even when the students are absent. Frequent absences pose obvious risks to the amount of learning a student gets in this course. Note that the University's medical excuse policy is available online at
`http://www.albany.edu/health_center/medicalexcuse.shtml`

Classroom Behavior

While I do encourage students to ask questions or to respond to questions I ask, students should be respectful of others in the classroom and should avoid disruptive behavior. In particular, ringing cell phones can be disruptive, and thus if you are carrying a cell phone, it should be turned off completely during classes (as well as tests and the final exam). If you believe that you have unusual circumstances which require you to be able to respond to cell phone calls even in class, please discuss the matter with me.

Students with Disabilities

Students with *documented* disabilities may request reasonable accommodation. Such students should know of the Disability Resource Center (CC 130; telephone 518-442-5490); this office can help disabled students obtain the needed documentation as well as help with the accommodations needed.

Blackboard

The Blackboard online system may be used for announcements and other course related purposes. Details will be announced in class. In the event of an emergency disrupting the semester, announcements may be placed there.

Approximate Schedule

The sections covered and dates listed are approximate and subject to change.

Week	Material Covered
1/23-26	Introduction, Review of Ch. 4
1/29-2/2	Ch. 5, 6.1
2/5-9	6.2, 6.3
2/12-16	6.4, 7.1
2/19-23	7.2, 7.3
2/26-3/2	7.4, 7.5
3/5-9	7.6, Midterm
3/12-16	Spring break!
3/19-23	7.7, 7.8, 7.9
3/26-30	8.l, 8.2
4/2-6	8.3, 8.4
4/9-13	9.1, 9.2
4/16-20	9.3, 9.4
4/23-27	9.5, 9.6
4/30-5/4	9.7, 11.1
5/7-9	11.2, Review

The date and time of the final exam, if it is not a take-home, is announced by the Registrar's Office. If the final is a take-home, it will be due at the time of the exam as announced by the Registrar's Office.

Information Literacy in Mathematics and Statistics
UNL 299
Syllabus sample
1 Credit

Instructor: Irina Holden, Information Literacy and Science Outreach Librarian,
Office: SL 241 (Science Library)
Phone: (518) 437-3941
E-mail: iholden@albany.edu
Office Hours: Wednesday, 11:00 – 12:00 p.m. and by appointment

Course: UNL 299 Information Literacy in Mathematics and Statistics
Day and Time: TBA
Location: University Library, B48
Course web page:

Course description:

Information is an extremely necessary and valuable commodity in today's world. Information is far more accessible than it ever was, and is generated by a far broader range of authors than ever before. Indeed, you yourself are an information producer, and you may be publishing some of this information publicly on the Web. Because of this incredible abundance, it is imperative to be able to efficiently find information and to critically assess and evaluate it and the sources in which it appears. In this course, you will interact with a broad range of information sources and strategies for finding information with an emphasis in the disciplines of mathematics and statistics. Various case studies and examples from scientific, technical, and popular literature will be used to achieve this purpose.
You will practice using your skills in the context of a team web-based research guide on a topic related to mathematics, statistics and/or computer sciences. There will be a component in the course on ethical and social issues connected with finding and using information, from plagiarism to the effects of technological access, not only to increase your exposure to different viewpoints, but also to empower you in your own decision making processes. UUNL299 meets the requirements for Information Literacy in the mathematics and statistics major. Please see the end of the syllabus for more details.

Prerequisite(s): None Corequisite: AMAT 300

Information Literacy Learning Objectives:
At the end of this course, students will be able to:

1. Understand the information environment and information needs in the discipline in today's society, including the organization of and access to information, and select the most appropriate strategies, search tools, and resources for each unique information need
2. Demonstrate the ability to evaluate content, including dynamic, online content if appropriate
3. Conduct ethical practices in the use of information, in ways that demonstrate awareness of issues of intellectual property and personal privacy in changing technology

environments (this will include discussions of copyright and patenting, and open access practices)
4. Produce, share, and evaluate information in a variety of participatory environments
5. Integrate learning and research strategies with lifelong learning processes and personal, academic, and professional goals
6. Apply knowledge of the APA (American Psychological Association) style by compiling a bibliography. Know how to write critical annotations

Student Responsibilities:

Each student is expected to contribute to an environment conducive to the learning of all students. This contribution includes, but is not limited to:

- Respecting the opinions of others
- Being prepared to participate actively, both in class as a whole, and in your team
- Taking responsibility for your learning and progress in the course
- Helping your team and the rest of the class to learn, and allowing others to help you learn
- Seeking help from the instructor as needed

Students are responsible for knowing and following the policies listed below. Students are also responsible for knowing and following the University policies outlined in the Undergraduate Bulletin (http://www.albany.edu/undergraduate_bulletin/academic.html).

Instructional Methods:

This course will incorporate active learning techniques and will require a high level of student participation. Teams will be established on the first day of class, and will work together throughout the course. Preparation for class material will take place before class, and several times during the quarter, I will be giving Readiness Assessment Tests (RATs), to check your preparation for class. These tests first will be taken individually (iRATs), and then together as a team (tRATs). Students will be responsible for taking part in class and team discussions. The class participation will be graded and then incorporated into your final course grade.

Class readings, handouts and other supplementary materials will be available through Blackboard.

Because of the structure of the course and your team's reliance upon every member, you need to attend regularly in order to do well.

Class Policies:

1. Class attendance:

   i. Readiness assessment tests are generally given at the beginning of class, and once one starts it is not possible to take it if you arrive late.

   ii. Work done during class is integral to the course, so this work cannot be made up. Your team will be counting on your participation. Stay in touch

with your team members and instructor.

2. Assignments:

- It is always the responsibility of the student to know when assignments are due.
- In order to show exact formatting, you must type citation and annotation assignments. I do not accept handwritten citations and annotations. Submit these assignments in Word or rtf files via Blackboard. Most of the assignments are due by 10 a.m. on the day of the class; however some exceptions apply. Such exceptions will be specified individually.

3. The use of personal electronic devices is not allowed during the class period.
4. In order to protect the computers, only water can be brought into the classroom.
5. Incompletes are not given for this course.

Academic Integrity

- If at any point in the semester you attempt to pass off someone else's words or ideas as your own – i.e. *plagiarize* – you will receive a grade of "0" for the assignment. You are responsible for acquainting yourself with the University's Plagiarism Policy (see http://www.albany.edu/undergraduate_bulletin/regulations.html).

Blog Posting Assignments

We will be using a class blog in order to practice one of the popular Web 2.0 tools. Most of the time you will be required to read an article or watch a web tutorial or a video and then present your responses to the questions formulated in the assignment. Grades will be based on the quality of your writing. Thoughtful, in-depth posts should be comprised two paragraphs and present a good example of college writing. Brief, perfunctory, or unoriginal responses will earn few points. Please be civil and considerate in your posts.

Website Research Project (Weebly or wiki – this is a subject to your choice)

Your final course project is a web-based information guide, produced collaboratively by your team. It will be located in PB Works (for the wiki) or weebly.com.

This guide will provide solid evidence of your team's understanding of the material highlighted in this course. Consider it, too, as a guide for novice researchers on the topic you are addressing. You should create your web guide with these interested users in mind. You will be finding, evaluating, citing and annotating resources in various formats that will become an annotated bibliography part of your wiki project. The information guide will also contain the Statistics in news exercise example, a glossary of key terminology on your topic, a database comparison and social media/open access component related to mathematics or statistics.
I encourage your team to use the team discussion forums. I can set up such forums within Blackboard upon your team's request.

Your **individual** weekly assignments ought to be submitted via Blackboard. During the class meetings the team will decide which sources might best contribute to the team web site.

The final web-based research guide (either in a wiki or Weebly platform) created by your team will contain the following components, presented in an aesthetically pleasing and functionally effective way:

- Title
- Indication of the components, with a way to maneuver between them (similar to the table of contents)
- Glossary of terminology: Define, in your own words, at least five of the terms connected with your team's topic. Select terms that novice researchers might not understand, or that were important when you were doing database searches for materials. If you need to include a brief phrase from a print- or Web-based source, include an in-text citation to show that these are not your own words
- Database comparison
- Statistics in news
- Social media/open access component
- Annotated bibliography: See below for full specifications

The annotated bibliography portion of the wiki should contain eight items in alphabetical order:

- A reference source (usually an entry in an encyclopedia, handbook, etc.)
- A book
- Two articles: one scholarly and one popular (based on criteria discussed in class)
- One excellent website
- One web source in the social media format: a blog written by a scientist, or scientific community site, or multimedia source such as online lecture, etc.
- *All sources should be labeled as primary, secondary or tertiary*

Use the APA page in CitationFox (linked through Blackboard or available through the library's website), or the Sixth Edition of *Publication Manual of the American Psychological Association* to make certain your citations are written correctly.

Course Readings:

- Students are required to read two-three articles from the Science Section of the New York Times (comes out on Tuesdays). Each class we will begin with the discussion.
- Other required and suggested readings, tutorials and videos for this course are available through Blackboard.

Grading and Course Requirements:

Grading (A-E grading system)

6%	Discussion posts on class blog
20%	RATs (divided between individual & team)
24%	Individual research guide components
10%	In-class participation
25%	Team web project
7%	Team presentation
8%	Team peer feedback and assessment

Scale	
A	1000-926
A-	925-896
B+	895-866
B	865-826
B-	825-796
C+	795-766
C	765-726
C-	725-696
D+	695-666
D	665-626
D-	625-596
E	595 and below

Class 1

Introductions: students and instructor
Syllabus and course policy discussion
Team formations
Information literacy and science literacy concepts
Virtual tour of the University Library and Science Library
Minerva/Databases (first peak)
Selecting a topic from the provided list– groups are working during class
Formulating a thesis statement (in-class ex.)

Homework assignment:

1. Post individually to the class blog the following:

- Your research strategy for narrowing down the topic selected by your team (you may list 3-5 questions or write a short paragraph), and 4-5 keywords that you might use for research on this topic.
- A preliminary thesis statement (use the strategies in the handout distributed in class.) It is also available from *www.indiana.edu/~wts/pamphlets/thesis_statement.pdf.*

Readings:

1. Science Section of the New York Times
2. Reference Resources, a mini-lecture available from Blackboard
3. Mini-lecture on Thesis Statement from Blackboard
4. ***Research strategies: Finding your way through the information fog*** by Bill Badke, Chapter 1, "Taking charge", available online at http://www.acts.twu.ca/library/chapter1.htm (link is also available through Blackboard)

Class 2 /

RATs (individual and team)
News in science for today (discussion of the *Science Times*)
Team web project work
Reference sources in mathematics and statistics
eDiscover service
Library of Congress Subject Headings
Annotated bibliography/APA Style Guide
Critical annotations
Tour of the Science Library
Online reference sources; in-class exercise
Reference Universe

Homework assignment:

- Find, cite and annotate a book and a reference book on a topic of your team project (book must be in print; reference book could be either in print or electronic format; both must be from the University Libraries – not from Amazon or Google books). No textbooks.

Readings:

1. Science Section of *the New York Times.*
2. ***Research Strategies: Finding your way through the information fog*** by William Badke, Chapter 4, "Metadata and the Power of Controlled Vocabularies" (available through Blackboard)
3. Mini-lecture *Periodicals* available from Blackboard

Class 3

RATs (individual and team)

News in science for today
Team web project work
Periodicals: scholarly journals vs. trade/professional or popular
A scholarly article: how to read?
Electronic databases: selection, search strategies, Boolean operators, fields, controlled vocabulary vs. keyword search
In-class exercise

Homework assignment:
Find, cite and annotate two articles on a topic of your bibliography.

- Article 1 must be from the scholarly journal.
- Article 2 must be found from the popular magazine, trade/professional journal or newspaper
  Note: Both articles should be found in one of the online databases to which University libraries subscribe such as Web of Science, INSPEC, MathSciNet, eDiscover, LexisNexis Academic, etc. and should not be from online news web sites

Reading:

1. ***Evaluating Web Content*** available at http://library.albany.edu/usered/eval/evalweb/index.html
2. ***Web Sources*** mini-lecture available from Blackboard
3. Science Section of *the New York Times*

Class 4

RATs (individual and team)
News in science for today
Team web project work
Web sources: search engines and search directories
Web sources evaluation

Homework assignment:

1. Find, cite and annotate two excellent websites on your topic: one of them should be in a social media format such as blog or other similar layout (no Wikipedia articles)
2. Blog posting (check our blog for a new assignment)
3. Complete mid-term peer-assessment

Reading:

1. Science Section of *the New York Times*
2. Mini-lecture *Primary, Secondary and Tertiary Sources* from Blackboard
3. Primary and Secondary Sources for Sciences available from http://library.albany.edu/usered/dr/prisci.html

Class 5

News in science for today
Team web project work

Primary/Secondary/Tertiary sources in mathematics and statistics, and other related subjects
Dissecting a primary article
Science literacy: civic, practical, cultural
SciFinder in-class exercise

Homework assignment:
Statistics in news: Find an article in one of the popular periodicals such as *New York Times*, *Wall Street Journal*, etc. (use LexisNexis Academic or EBSCO Academic Search Complete) that includes some data or other statistical information as an explanation targeting general public. Find the original research that is described in this article, and compare how the data was represented and interpreted in both sources.

Readings:

1. Science section of the *New York Times*
2. "Cracking open the scientific process", an article by Thomas Lin from the *New York Times* (January 17, 2011) (available through Blackboard)
3. Mini-lecture *Patenting and Copyright* available through Blackboard

Class 6
RATs (individual and team)
News in science for today
Team work: working on a web project
Copyright/plagiarism/academic dishonesty
Digital divide, electronic privacy issues
Open source publications
Patents; in-class exercise
Questions/answers/final projects
Research project grading rubric

Homework assignment:

- Database Critique and Comparison: Select a pair of databases from the list (provided in Blackboard) and write a two-paragraph narrative analyzing and comparing the databases according to the homework assignment sheet.
- Complete the team web project and prepare an outline of your presentation consulting the handout
- Blog posting (check our blog for a new assignment)
- Final peer assessments

Readings:

1. Science Section of *the New York Times*

Class 7

News in science for today
Course overview
Wrap-up exercise
Presentations

Information Literacy

Information literate individuals are able to gather, evaluate, use, manage, synthesize, and create information and data in an ethical manner. They also understand the dynamic environment in which information and data are created, handled, and enhanced. Students demonstrate information literacy through finding information from appropriate sources; evaluating, using and managing information; and appreciating the role of information literacy in learning. Learning is understood here as the constant search for meaning by acquiring information, reflecting on and engaging with it, and actively applying it in multiple contexts. To this end, each academic major will offer increasingly sophisticated research assignments that rely upon diverse information sources. Students will find, process, evaluate, and cite information sources, creating and sharing information presented in multiple formats from multiple sources in a form appropriate to the discipline.

Distance Education Format Proposal
For A Proposed or Registered Program

Form 4

Version 2014-11-17

When a new or existing program is designed for a distance education format, 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: Sections 1 - 3, 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.

Section 1. General Information		
a) Institutional Information	Institution's 6-digit SED Code:	210500
	Institution's Name:	University at Albany
	Address:	*1400 Washington Avenue, Albany, NY 12222*
b) Registered or Proposed Program	Program Title:	Mathematics
	SED Program Code	03012
	Award(s) (e.g., A.A., B.S.):	B.A.
	Number of Required Credits:	Minimum [120] If tracks or options, largest minimum [120]
	HEGIS Code:	1701
	CIP 2010 Code:	17.0101
c) Distance Education Contact	Name and title: Billie Bennett Franchini, Ph.D., Director of the Institute for Teaching, Learning and Academic Leadership and Interim Director of Online Teaching & Learning Telephone: (518) 442-4850 E-mail: bfranchini@albany.edu	
d) 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: Carol Kim, Ph.D., Senior Vice Provost for Academic Affairs & Provost Signature and date:  January 31, 2023	
	If the program will be registered jointly[1] with one or more other institutions, provide the following information for <u>each</u> institution:	
	Partner institution's name and 6-digit SED Code: Name, title, and signature of partner institution's CEO (or **append** a signed letter indicating approval of this proposal):	

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

Section 2: Enrollment

Year	Anticipated Headcount Enrollment			Estimated FTE
	Full-time	Part-time	Total	
1	10	0	10	10
2	10	0	10	10
3	10	0	10	10
4	10	0	10	10
5	10	0	10	10

Section 3: Program Information

a) ***Term length*** (in weeks) for the distance program: 15

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.*

55 minutes

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?

We anticipate offering 50% of the program requirements online.

e) What is the maximum number of students who would be enrolled in an online course section?

We will enroll a maximum of 35 students in our online courses.

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**.

Part A.1. 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.

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?

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.

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.

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.*

Part A.2. 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.

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?

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.

d) What ***orientation*** opportunities and resources are available for students of distance learning?

Part B: Program-Specific Issues: Submit Part B for each new request to add Distance Education Format to a proposed or registered program.

Part B.1. 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 and syllabi for the Distance Learning Program will remain the same as our in-person program. Syllabi will have the same learning outcomes and expectations of students, whether the course is taught online or in-person.

b) Are the courses that make up the distance learning program offered in a sequence or configuration that allows ***timely completion of requirements***?

Yes - courses will be offered on a regular basis. Students work with an advisor to be sure they are taking courses when needed, to insure progression through the program. The program will be completed in the same amount of time as the in-person program.

c) How do faculty and others ensure that ***the technological tools*** used in the program are appropriate for the content and intended learning outcomes?

The University provides faculty with learning management software, currently Blackboard. Through this program faculty can upload videos, create discussion boards, provide readings and links for students, and posts. The University also uses Zoom, which provides faculty the ability to offer interactive lectures and also record those lectures to post to the class's Blackboard page. Zoom also allows for students to have breakout space for group work, and a way for faculty to offer office hours to students who are online. If faculty teaching these courses need more support for technological tools, they will reach out to the University's Institute for Teaching, Learning, and Academic Leadership. This Institute helps faculty with online teaching pedagogy and can help faculty learn new tools or ways to accomplish the goals they set for their classes and students.

d) How does the program provide for appropriate and flexible interaction between faculty and students, and among students?

Students will have a wide range of technologies available for communicating with other students, the instructor, and their academic advisor. Blackboard has a discussion board section, that allows students to comment on other's comments, helping to build a conversation between students and faculty. Typically, faculty use ZOOM for holding office hours and conferencing with students and the entire class at times for lectures. Zoom also has a breakout feature, allowing students to meet in groups with students for group work. Students and professors will have the ability to email each other or use the office telephone in addition to Zoom. Students

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?

The University at Albany has a two-layer authentication and authorization system. Students participating in online learning are required to establish an account and log into the University password protected domain by using their NETID. The same will apply when they log in to the online learning system.

Part B.2. 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?

Learning outcomes are explicitly stated on all mathematics course syllabi. All students receive a copy of the syllabus on the first day of class.

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.

Student learning in all mathematics courses is assessed through a combination of problem solving and proof writing, in addition to projects/presentations. This applies to both online and in person courses. Assessment takes place by a combination of homework assignments, tests, and presentations, which would be the same for both online and in person.

Part B.3. Program Evaluation

a) What process is in place to monitor and ***evaluate the effectiveness*** of this particular distance education program on a regular basis?

The Mathematics Department has faculty members tasked with annual review and assessment of student learning outcomes in departmental courses. This applies to both in-person and online courses. These faculty review the syllabus (or syllabi) for that year, the learning outcomes and assessments used to meet

the outcomes. They also look at student performance in the course. In addition, the department will monitor Student Instructional Rating Form (SIRF) evaluations for both types of courses to ensure student performance is comparable.

b) How will the evaluation results will be used for ***continuous program improvement***?

The Department Undergraduate Committee meets to discuss the results of these yearly evaluations and makes recommendations for improvement. The committee monitors changes over the years to ensure continuous improvement.

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?

The program's learning outcomes were set to meet the University's and accreditation standards for rigor and depth. Each year the Department's Undergraduate Committee reviews each course's learning outcomes to be sure that the overall program's learning outcomes are being met. Should there ever be a concern, the committee will address that with all faculty who teach the courses in concern and assist in ways to ensure that the course is modified to meet the standards expected.

Part B.4. 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?

The State Authorization Reciprocity Agreement (SARA) process allows the University at Albany to deliver our online programs in states outside New York. SARA is a voluntary agreement among its member states and U.S. territories that establishes one set of national standards and regulations for offering postsecondary distance education courses and programs. This agreement is administered by four regional educational compacts and overseen by the National Council for State Authorization Reciprocity Agreements (NC-SARA). New York is a member of SARA and the University at Albany is an approved SARA institution. We adhere to the established SARA standards for offering online education among member states, districts and territories. As a result, our online students benefit from expanded access to educational offerings, an enhanced quality of distance education and better resolution of any complaints.

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?

https://www.albany.edu/online/non-nys-residents.php