

The University of Iowa
The College of Liberal Arts and Sciences
Department of Statistics and Actuarial Science
ACTS:3080 Mathematics of Finance I - Fall 2021

11:30 am-12:20 pm Monday, Wednesday, & Friday, 208 CALH

▷ **General Information**

– *Instructor:* Michelle Larson, 221 SH, 335-0814, michelle-larson@uiowa.edu
Drop-In Hours: Mondays 6:30pm-8:30pm, Fridays 9:30am-10:30am, and by appointment

– *DEO:* Kung-Sik Chan, 241 SH, 335-0712, kung-sik-chan@uiowa.edu

– *Course Description:* This course is intended for students who are studying for the SOA Exam FM (Financial Mathematics) December 2021 or later. The course will cover SOA learning objectives 1-6. Objective 7 (0%-10% of Exam FM) is covered in ACTS:3210 and by SOA Study Notes; this material will be covered in optional lectures during the semester. The description of SOA Exam FM is at <https://www.soa.org/education/exam-req/edu-exam-fm-detail.aspx>.

Prerequisites: Grade of B- or higher in STAT:3100 or graduate standing

– *Lecture Notes:* The course is taught from Lecture Notes which will be posted on ICON. Students are strongly encouraged to print these notes in advance and complete them during lecture.

– *Calculator (REQUIRED):* Students will need a CAS/SOA approved calculator. The TI BA II Plus calculator is highly recommended since it has the ability to solve for interest rates. Students are strongly encouraged to bring their calculator to every class and to use their calculator for all work done for this class. Only CAS/SOA approved calculators will be allowed during exams.

– *ICON/Web:* This course will use ICON powered by Canvas (<http://icon.uiowa.edu>) for announcements, notes, homework assignments, extra practice problems, etc.

▷ **Course Topics**

– We will cover the following topics in roughly this order:

- * Interest rates and factors
- * Level annuities
- * Varying annuities
- * Non-annual interest rates and annuities
- * Project appraisal and loans
- * Financial instruments (Stocks and Bonds)
- * The term structure of interest rates
- * Duration, convexity and immunization

– Students are encouraged to use technology to perform calculations, however, explicit work (formulas, computations, etc.) is required to be shown.

▷ **Grading**

– *Quizzes:* (10% total) Quizzes will be given via ICON, usually after each lecture; the lowest three quizzes will be dropped.

– *Homework:* (10% total) Homework will be due each Wednesday at 11:59pm. Students must submit a single, pdf file of reasonable size to ICON. Because the grader *may not* have enough time to grade each problem, a subset of the assigned problems will be graded. *Homework turned in late or illegible will be given a score of zero.* The lowest homework score will be dropped. Students are encouraged to work together on homework but work submitted must be your own. Solutions must appear in the order assigned. Be sure your name and the assignment number appear at the top of the first page.

- *Exams*: There will be 2 midterm exams (25% each) and a final exam (30%). Midterms will be given in the evenings. Exam dates:
 - * Midterm Exam 1: Tuesday, September 28, 2021 6:30 - 8:30 pm 106 GILH
 - * Midterm Exam 2: Tuesday, November 2, 2021 6:30 - 8:30 pm 106 GILH
 - * Final Exam: TBA

Students are expected to be present for the exams at the *scheduled time*. If you have a legitimate, unavoidable conflict, it is your responsibility to make the appropriate arrangements at least 24 hours in advance. If you miss an exam due to a sudden absence, email the instructor immediately.

- Your attendance, participation, preparedness, work ethic, etc. may affect your grade.
- Students may find that problems from the study manuals, textbooks, and the past SOA exams are useful in preparing for quizzes and exams in this course.
- This course uses the +/- grading system (i.e. grades such as A-, B+, and B will be assigned). Grade cutoffs will be no higher than the usual 90 (A-), 80 (B-), 70 (C-), 60 (D-) breakdown. I do not anticipate a curve.
- Bonus points may be given at any time and may be applied to any part of your grade.

▷ ***Extra Help***

- Students are encouraged to seek help from their professor, TA, peers, and/or advisor.
- ALL student, including those doing well in the class, are encouraged to attend office hours and other help sessions regularly.

▷ ***Notes***

- Students are highly encouraged to form study groups. Study groups will aid in comprehension of the material and will be beneficial as you continue in the major.
- Do not miss class. You need to attend every day to succeed in this class.
- Please refrain from eating, using your phone, wearing earbuds, and using other electronic devices during class. It is important that you are present and paying full attention in order to appreciate the intricacies of the material.
- Success in this class requires a large time commitment. A *minimum* of 15 to 20 hours per week is expected. Review/study numerous times throughout the week.
- If you are absent from discussion or lecture (without giving prior notice), I will not provide hand-outs/notes.
- When you are done reading this document, and before the final exam begins, email me a picture of a flower for 5 bonus quiz points.

▷ ***Academic Misconduct***

- During **exams** you may not talk, whisper, pass notes, view other students' work, allow a fellow student to view your own work (cover your paper!), use class notes, share calculators, access the internet, get help from others, etc. All such actions are considered academic misconduct and will be reported to the UI.
- You may, however, work with a other students on your **homework** provided *each of you do all of the problems in their entirety* (at which point you can compare methods, approaches, and answers). *Simply copying a another student's homework will be considered academic misconduct.*

▷ ***CLAS and Graduate College Academic Policies*** - see attached

College of Liberal Arts and Sciences
Information for CLAS Undergraduates
Fall 2021

Attendance and Classroom Expectations

Students are responsible for attending class and for knowing an instructor's attendance policies, which vary by course and content area. All students are expected to attend class and to contribute to its learning environment. Students are also expected to comply with University policies and directives regarding appropriate classroom behavior or other matters. Students also have the right to be evaluated solely on their academic achievement and the fulfillment of related requirements.

Absences

Students are responsible for communicating with instructors as soon they know that an absence might occur or as soon as possible in the case of an illness. Students may use the CLAS absence form to aid in communication with instructors who will decide if the absence is excused or unexcused; the form is located on ICON within the top banner under "Student Tools." Delays in communication could result in a forfeit of what otherwise might be an excused absence.

Absences: Illness, Unavoidable Circumstances, and University Sponsored Activities

Students who are ill, in an unavoidable circumstance affecting academic work, or who miss class because of a University sponsored activity are allowed by UI policy to make up a missed exam. Documentation is required by the instructor except in the case of a brief illness. Students are responsible for communicating with instructors as soon as the absence is known.

Absences: Holy Days

Reasonable accommodations are allowed for students whose religious holy days coincide with their classroom assignments, tests, and attendance if the student notifies the instructor in writing of any such religious Holy Day conflicts within the first days of the semester and no later than the third week. (See the University Operations Manual:

<https://opsmanual.uiowa.edu/students/absences-class#8.2>).

Absences: Military Service Obligations

Students absent from class due to U.S. veteran or U.S. military service obligations (including military service-related medical appointments, military orders, and National Guard Service obligations) must be excused without penalty. Instructors must make reasonable accommodations to allow students to make-up exams or other work. Students must communicate with their instructors about the expected possibility of missing class as soon as possible. (For more information, see <https://opsmanual.uiowa.edu/iv-8-absences-class%C2%A0-0>).

Academic Misconduct

All undergraduates enrolled in courses offered by CLAS have in essence agreed to the College's Code of Academic Honesty. Academic misconduct affects a student's grade and is reported to the College which applies an additional sanction, such as suspension. Outcomes about misconduct are communicated through UI email (<https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>).

Academic Accommodations for Students with Disabilities

UI is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as a mental health, attention, learning, vision, and a physical or health-related condition) through the Student Disability Services (SDS) office. The student is responsible for discussing specific accommodations with the instructor. Note that accommodations are not granted retroactively but from the time of the student's request to the instructor onward; additionally, accommodations must be requested at least two weeks in advance of the related assignment or exam (<https://sds.studentlife.uiowa.edu/>).

Class Recordings: Privacy and Sharing

Course lectures and discussions are sometimes recorded or live-streamed. These are only available to students registered for the course and the intellectual property of the faculty member. These materials may not be shared or reproduced without the explicit written consent of the instructors. Students may not share these recordings with those who are not enrolled in the course; likewise, students may not upload recordings to any other online environment. Doing so is a breach of the Code of Student Conduct and could be a violation of the Federal Education Rights and Privacy Act (FERPA); also see <https://dos.uiowa.edu/policies/code-of-student-life/>.

Communication: UI Email

Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community ([Operations Manual, III.15.2](#)). Emails should be respectful and brief, with complex matters addressed during the instructor's drop-in hours, for example. Faculty are not expected to answer email after business hours or during the weekends.

Communication: Free Expression

The University of Iowa supports and upholds the First Amendment protection of freedom of speech and the principle of academic freedom to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech if student expression in a class context is germane to the subject matter of the class and is conveyed in an appropriate manner. To learn more, visit <https://freespeech.uiowa.edu/>.

Complaints about Academic Matters

Students with a complaint about a grade or a related academic matter should first visit with the instructor and then with the course supervisor if one is assigned, and finally with the Chair of the department or program offering the course. Students may next bring the issue if not resolved to the College of Liberal Arts and Sciences. See <https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

Final Examination Policies

The final exam schedule is published during the fifth week of the fall and spring semesters or on the first day of summer classes; students are responsible for knowing the date, time, and place of their final exams. Students should not make travel plans until knowing this information. A student with exams scheduled on the same day and time or who have more than two final exams on the same day should visit this page for how to resolve these problems by the given deadline: <https://registrar.uiowa.edu/makeup-final-examination-policies>. No exams are allowed the week before finals, but with some exceptions made for labs, language courses, and off-cycle courses (<https://registrar.uiowa.edu/final-examination-scheduling-policies>).

Home of the Course

The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the courses add and drop deadlines, the "second-grade only" option (SGO), and other undergraduate policies and procedures. Different UI colleges may have other policies or deadlines. See <https://clas.uiowa.edu/students/handbook>. Questions? Contact CLAS at clasps@uiowa.edu or 319-335-2633.

Mental Health

Students are encouraged to seek help as a preventive measure or if feeling stressed or overwhelmed. Students should talk to their instructors for guidance with specific class-related concerns and are encouraged to contact University Counseling Service (UCS) at 319-335-7294 during regular business hours to schedule an appointment. USC offers group and individual therapy as well as counseling for couples about relationships while making referrals to other resources (<https://counseling.uiowa.edu/>). Student Health can also address related concerns (<https://studenthealth.uiowa.edu/>). These visits are free to students. After hours, students are encouraged to call the Johnson County Community Crisis Line at (319) 351-0140 or dial 911 in an emergency.

Nondiscrimination in the Classroom

The University of Iowa is committed to making the classroom a respectful and inclusive space for people of all gender, sexual, racial, religious, and other identities. Toward this goal, students are invited in MyUI to optionally share the names and pronouns they would like their instructors and advisors to use to address them. The University of Iowa prohibits discrimination and harassment against individuals based on race, class, gender, sexual orientation, national origin, and other identity categories indicated by the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity at <https://diversity.uiowa.edu/division/office-equal-opportunity-and-diversity-eod>

Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff; all members of the UI community are expected to conduct themselves in a manner that maintains an environment free from sexual harassment and sexual misconduct. Those experiencing sexual harassment are strongly encouraged to report the incidents and to seek help (<https://osmrc.uiowa.edu/>).

**College of Liberal Arts and Sciences (CLAS)
Graduate Course Syllabus Insert
Fall 2021**

Attendance and Classroom Expectations

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Academic Misconduct

Plagiarism and the process for addressing academic misconduct of graduate students are defined in [Section IV, Article F "Plagiarism by Graduate Students" of the UI Graduate College Manual of Rules and Regulations](#). Please contact the CLAS Associate Dean for Graduate Education for any necessary assistance in navigating the process mandated by the Graduate College.

Academic Accommodations

UI is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as a mental health, attention, learning, vision, and a physical or health-related condition) through the Student Disability Services (SDS) office. The student is responsible for discussing specific accommodations with the instructor. Note that accommodations are not granted retroactively but from the time of the student's request to the instructor onward; additionally, accommodations must be requested at least two weeks in advance of the related assignment or exam (<https://sds.studentlife.uiowa.edu/>). Graduate students serving as Teaching Assistants, Research Assistants, or Fellows must contact Faculty and Staff Disability Services (<https://hr.uiowa.edu/support/faculty-and-staff-disability-services>) for assistance with accommodations.

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