



**STA 4183**

**Theory of Interest**

**Fall 2019**

**Instructor:**

John Seppala  
116A Griffin-Floyd Hall  
[jseppala@ufl.edu](mailto:jseppala@ufl.edu)  
352-273-2971  
MTWR 12:15pm-1:15pm

The instructor is your sole point of contact for matters regarding course administration, course policy, and examination and course grades. The instructor is also your secondary point of contact for assistance with course material, homework grades, and the use of technology.

**TA:**

Xiao Fang  
117A Griffin-Floyd Hall  
[xiaofang@ufl.edu](mailto:xiaofang@ufl.edu)  
MW 9:00am-11:00am

The TA is your primary point of contact for assistance with course material, homework grades, and the use of technology.

**Class:**

Tue 1:55pm-2:45pm (Period 7)  
Thu 1:55pm-3:50pm (Periods 7 and 8)  
McCarty Hall B Room G86  
Section 1A61

**Textbooks:**

*The Theory of Interest* (3e), by Stephen G. Kellison (required)  
*Mathematical Interest Theory* (2e), by Vaaler and Daniel (reference)  
*Interest Theory* (2e), by Francis and Ruckman (reference)  
[\*A Basic Course in the Theory of Interest and Derivatives Markets: A Preparation for Exam FM/2\*](#), by Marcel B. Finan (supplemental)

**Description:**

A study of basic interest concepts with applications. Topics include simple and compound interest, equations of value, annuities-certain, loan amortization, bond valuation, calculation of yield rates, interest rate sensitivity, the term structure of interest rates, and interest rate markets. The course content is designed to align closely with the [syllabus for the Society of Actuaries Financial Mathematics Exam](#). Credits: 3. Prerequisite: MAC 2312 or the equivalent.

**Exams:**

Three two-hour exams will be given in class on the following dates:

Thu, Sep 19

Thu, Oct 24

Wed, Dec 11 (10:00am)

The exams will each have a combination of free response and multiple-choice questions. The multiple-choice questions are intended to be similar to questions on the Society of Actuaries Exam FM. Also in accordance with SOA exams, no formulas or formula sheets will be given for the exams, and **only** calculators from the TI-30 series (TI-30Xa, TI-30X II, or TI-30XS) or TI-BA series (BA-35, BA II Plus, or BA II Plus Professional) may be used. A review session will be held during the class period prior to each exam. Although many concepts learned early in the course continue to be used later in the course, the exams are not designed to be cumulative. There is not a final exam for the course. Make-up exams will **only** be given for **documented** cases of emergencies and **extreme** illnesses. Proper notification should be given to the instructor as soon as possible. Any approved make-up exams will be given near the end of the semester.

**Homework:**

Nine homework assignments will be submitted in paper form at the beginning of class on selected days. Homework assignments and their due dates will be posted in Canvas. Late homework will not receive credit. The lowest homework score will be dropped. Homework is assigned to help reinforce the material learned in class—not just to get the right answer and improve your course grade! Homework solutions must show all formulas and steps used and be the sole work of each individual student.

**Canvas:**

Students should log in to Canvas regularly to view and download class files, check announcements, and view and participate in discussions. Call 352-392-4357 or visit <https://elearning.ufl.edu> for help with Canvas.

**Attendance:**

Attendance is not a direct component of the course grade. However, poor attendance is a major contributor to low grades. I encourage every student to arrive to class prepared to engage in the learning process that unfolds during each day's lesson.

**Grading:**

Numeric grading will be on a point system as follows:

Exams	3 x 250	= 750 points
Homework	8 x 20	= 160 points
Free Points	1 x 90	= 90 points
Total		= 1000 points

The grading scale will be as follows:

A = 900-1000, A- = 880-899, B+ = 860-879, B = 800-859, B- = 780-799,  
C+ = 760-779, C = 680-759, D = 600-679, E = 0-599.

**Florida Actuarial Student Society:**

The Florida Actuarial Student Society (FASS) is run by UF students dedicated to informing other students about the actuarial profession and helping them network with their peers. FASS also links students interested in the profession with representatives from companies that recruit students for actuarial internships and full-time entry-level positions. Visit <http://users.stat.ufl.edu/~fass/> or contact president Ali Rose [fasspresident@gmail.com](mailto:fasspresident@gmail.com) to join or learn more about FASS.

**Student Honor Code:**

UF students are required to adhere to both the Student Conduct Code and the Student Honor Code, <https://sccr.dso.ufl.edu/students/student-conduct-code/>. On all exams, students will write and sign the Honor Pledge: “On my honor, I have not given, received, or witnessed unauthorized aid on this exam.” Students are also bound by honor to report academic misconduct to the instructor. Any student found in violation of the Honor Code will receive a final course grade of “E” and may be subject to additional disciplinary action by the University. The actuarial profession is renowned for its exemplary ethical practices, and actuaries are required to adhere to the Actuarial Professional Code of Conduct, <https://www.soa.org/about/governance/about-code-of-professional-conduct/>. Thank you in advance for making a personal commitment to maintaining a high standard of integrity and for helping me to promote an atmosphere of respect for one another that is conducive to learning.

**Students with Disabilities:**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor in order for the accommodations to be implemented in the course. Students must also schedule exams individually through the DRC.

**Faculty Course Evaluations:**

Student feedback is welcomed by the instructor and beneficial to future students in the course. Students are requested to provide feedback on the quality of instruction in this course by completing a brief confidential evaluation towards the end of the semester at <https://evaluations.ufl.edu>. Summaries of the evaluation results can be found at <https://evaluations.ufl.edu/results>.

**University Services:**

The University of Florida is committed to ensuring the well-being of all students by creating a culture of care on campus. Members of the community are encouraged to look out for each other and to reach out for help as needed. Please contact one of the following resources if you or another student would benefit from services.

U Matter, We Care [www.umatter.ufl.edu](http://www.umatter.ufl.edu) 352-294-2273

UF Counseling and Wellness Center [www.counseling.ufl.edu](http://www.counseling.ufl.edu) 352-392-1575

UF Police Department [www.police.ufl.edu](http://www.police.ufl.edu) 352-392-1111 (or 911 for emergencies)

**Tentative Course Schedule:**

Day	Lesson	Section(s)	Topic(s)	HW Due
Tue	Aug 20	1.1-1.3	Amount and accumulation functions	
Thu	Aug 22	1.4, 1.6a, 1.7a	Simple interest and discount	
Thu	Aug 22	1.5, 1.6b, 1.7b	Compound interest and discount	
Tue	Aug 27	1.8	Nominal interest and discount	
Thu	Aug 29	1.9	Force of interest and discount	
Thu	Aug 29	2.1-2.3	Equations of value	
Tue	Sep 3	2.4-2.5	Unknown time and interest	
Thu	Sep 5	3.1-3.2	Annuities immediate	#1
Thu	Sep 5	3.3	Annuities due	
Tue	Sep 10	3.4-3.5	Perpetuities	
Thu	Sep 12	3.6	Annuities with unknown time	#2
Thu	Sep 12	3.7-3.8	Annuities with unknown interest	
Tue	Sep 17	Review		
Thu	Sep 19	Exam #1		#3
Thu	Sep 19	Exam #1		
Tue	Sep 24	4.1-4.3	Annuities with less frequent payments	
Thu	Sep 26	4.4	Annuities with more frequent payments	
Thu	Sep 26	4.6	Annuities in arithmetic progression	
Tue	Oct 1	4.7	Annuities in geometric progression	
Thu	Oct 3	4.5, 4.8-4.9	Annuities with continuous or variable payments	
Thu	Oct 3	5.1-5.3	Loan balance and amortization	
Tue	Oct 8	5.5-5.6	Loans with varying periods or payments	
Thu	Oct 10	6.1-6.3	Bond pricing	#4
Thu	Oct 10	6.4	Bond premium and discount	
Tue	Oct 15	6.5	Bond valuation between payments	
Thu	Oct 17	6.6	Bond yield rates	#5
Thu	Oct 17	6.7, 6.10	Callable and putable bonds	
Tue	Oct 22	Review		
Thu	Oct 24	Exam #2		#6
Thu	Oct 24	Exam #2		
Tue	Oct 29	7.4	Reinvestment rates	
Thu	Oct 31	7.5	Dollar-weighted interest rates	
Thu	Oct 31	7.6	Time-weighted interest rates	
Tue	Nov 5	7.9-7.10	Capital budgeting	
Thu	Nov 7	11.1-11.2, X.1	Duration	
Thu	Nov 7	11.3, X.2	Convexity	
Tue	Nov 12	11.5-11.6	Asset matching	
Thu	Nov 14	11.7-11.8	Immunitization	#7
Thu	Nov 14	10.1-10.3	Spot rates	
Tue	Nov 19	10.4-10.5	Forward rates	
Thu	Nov 21	Y.1	Rate swaps	#8
Thu	Nov 21	Z.1	Determinants of interest rates	
Tue	Nov 26		No class – Thanksgiving	
Thu	Nov 28		No class – Thanksgiving	
Thu	Nov 28		No class – Thanksgiving	
Tue	Dec 3	Review		#9 2pm 12/5
Wed	Dec 11	Exam #3	Starts at 10:00 am	