

# Read It : STA 4183 Fall 2020

## Course Homepage

### Instructor:

John Seppala, Lecturer and Actuarial Science Coordinator  
Department of Statistics, University of Florida

[Accessibility score: Perfect Click to improve](#)

### Instructor email:

[jseppala@ufl.edu](mailto:jseppala@ufl.edu)

### Instructor office hours:

Monday and Wednesday 9:00 am to 10:00 am  
Tuesday and Thursday 10:00 am to 11:00 am

### Teaching Assistant Information:

Xiao Fang

[xiaofang@ufl.edu](mailto:xiaofang@ufl.edu)

Office Hours: TBA

### Course information:

This course is an asynchronous class, with three prerecorded video lectures per week.  
Credit hours: 3. Contact hours: 3. Prerequisite: MAC 2312.

### Course description:

A study of basic interest concepts with applications. Topics include simple and compound interest, equations of value, annuities, yield rates, loans, bonds, sensitivity analysis, immunization, term structure of interest rates, interest rate swaps, and interest

rate markets. The course content is designed to align closely with the syllabus for the Society of Actuaries Financial Mathematics Exam.

### **Course learning goals:**

After successful completion of the course, students will be able to:

- - solve equations involving the time value of money
  - calculate annuity and perpetuity values
  - calculate loan payments and balances
  - calculate bond values and yield rates
  - calculate changes in cash flow values
  - match and immunize a set of cash flows
  - calculate swap rates, values, and payments
  - understand interest rate theory and markets

### **Welcome message:**

Students,

Hello, and welcome to Theory of Interest! I am excited to be teaching this course, and I hope that you are excited to be taking it! The course is a rigorous treatment of concepts of interest theory designed to prepare students to sit for the Society of Actuaries Financial Mathematics Exam (Exam FM). In order to succeed in the course, you will need to vigorously attack the material, diligently keep up with and complete all assignments, tirelessly memorize dozens of formulas, and thoroughly prepare for the comprehensive exam at the end of the semester. Upon successful completion of the course, you will have mastered the concepts and calculations of interest theory and should be well prepared to sit for Exam FM.

Please **scroll through** the information below to familiarize yourself with the basic course structure in Canvas. Then **complete** the rest of Pre-Module 0 to begin the course. I hope you will find this course interesting and useful, and that your experience this semester will be challenging and rewarding!

Grace and peace,

John Seppala

### **Modules:**

The course is organized into 9 content modules. Each content module contains the following:

- Lecture videos (multimedia audio/visual/screen; 2 to 6 videos per module)
- Lecture notes (handwritten; 2 to 6 pages per lecture video)
- Course notes (typed; 1 to 5 pages per module)
- Homework assignments (6 to 12 problems per assignment; 1 or 2 assignments per module)
- Discussion boards (optional participation; 1 per module)

**List of Graded Work:**

The following items are components of the overall course grade:

- Course introduction quiz (online in Canvas), due Sun Sep 6
- 33 prerecorded video lectures (viewed online in Canvas using Mediasite), due each Mon/Wed/Fri
- 11 weekly homework assignments (submitted online in Canvas), due each Sunday
- Comprehensive exam (online in Canvas using Honorlock), Thu Dec 3, 2:00 pm to 5:15 pm

Next

This page contains information about various aspects of STA 4183.

Section 1: Basic Course Communication Information

Name and Title:	John Seppala, Lecturer and Actuarial Science Coordinator	Xiao Fang, Teaching Assistant
Office Location:	N/A Fall 2020	N/A Fall 2020
Phone:	N/A Fall 2020	N/A Fall 2020
Email:	<a href="mailto:jseppala@ufl.edu">jseppala@ufl.edu</a>	<a href="mailto:xiaofang@ufl.edu">xiaofang@ufl.edu</a>
Preferred form of Contact:	email	email
Open Office Hours:	MT 10:00 am to 11:00 am WR 9:00 am to 10:00 am	MT 2:00 pm to 3:30 pm R 2:30 pm to 3:30 pm

Office Hours Link:	<a href="https://ufl.zoom.us/j/5032820010">https://ufl.zoom.us/j/5032820010</a>	<a href="https://ufl.zoom.us/j/6744295617">https://ufl.zoom.us/j/6744295617</a>
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Scope: Collectively, the instructor and the TA are a resource to help students succeed in the course. The instructor is the primary point of contact for administrative matters and the secondary contact for instructional matters. The TA is the primary point of contact for instructional matters and the secondary point of contact for administrative matters.

Communication: The instructor and the TA will each hold open office hours through ZOOM. In addition, they may be contacted by email, Canvas messaging, or Canvas discussion boards. Return correspondence will generally be made within 2 business days Monday through Friday, 8:00 am to 5:00 pm.

Conduct: Please follow the [UF Netiquette Guide for Online Courses](#).

## Section 2: Required and Recommended Materials for this Course

- Textbooks: There are no required textbooks for the course, but students may find the following references to be useful resources:
  - [Interest Theory \(2e\)](#), by Francis and Ruckman
  - [Mathematical Interest Theory \(3e\)](#), by Vaaler and Daniel
  - [The Theory of Interest \(3e\)](#), by Kellison
  - [A Basic Course in the Theory of Interest](#), by Finan
- Approved Calculators: Students will need both a scientific calculator and a financial calculator to succeed in the course. Calculators can be purchased at [walmart.com](http://walmart.com), [target.com](http://target.com), [bestbuy.com](http://bestbuy.com), [officemax.com](http://officemax.com), and [epsstore.ti.com](http://epsstore.ti.com). **ONLY** the following models of Texas Instruments calculators approved by the Society of Actuaries are permitted for use in the course:
  - TI-30 scientific series (Xa, XIIS, XIIB, XS, or XB)
  - TI-BA financial series (35, II Plus, or II Plus Pro)
- Additional Reading: The following study notes are required for the course:
  - [FM-24-17 Duration and Convexity](#)
  - [FM-25-17 Interest Rate Swaps](#)
  - [FM-26-17 Determinants of Interest Rates](#)
- Optional Study Resources: Students may find the following study programs to be valuable in preparing for the comprehensive course exam and for the professional actuarial exam:
  - [Coaching Actuaries Online Study Platform for Exam FM](#)
  - [ACTEX Study Manual for SOA Exam FM](#)
- Required Technology: Students will need to use ZOOM, Adobe Reader, Honorlock online proctoring, a webcam, and a reliable high speed Ethernet connection for various elements of the course.
- Course Fees: N/A

### Section 3: Grading Policies and Grading Scale

- Late Videos: **NO** credit will be given for any reason for lecture videos watched after their due dates. It is highly recommended that students watch all lecture videos at least 48 hours before their due dates.
- Late Homework: Late homework is **NOT** accepted for any reason. At the end of the semester, the lowest homework score will be replaced by the second-lowest score. It is highly recommended that students complete and submit all homework assignments at least 48 hours before their due dates.
- Make-up Exams: All students are required to take the comprehensive exam on Thursday, December 3, from 2:00 pm to 5:15 pm. 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 online on Thursday, December 10, from 2:00 pm to 5:15 pm. No credit is given for an exam that is not taken.
- Grade FAQs:
  - Do you give extra credit? No.
  - Can I redo an assignment/exam for a higher grade? No.
  - Will you curve the assignments or exam? No.
  - Can you give me a higher final grade than I earned? No.
- Grade Feedback: Grades will generally post to the Canvas gradebook within one week of the assignment due date for all graded work (Introductory Quiz, Video Lectures, Homework, and Comprehensive Exam).
- Grade Calculation: The following assignments (worth 1000 points total) will count towards the final course grade:
  - Introductory Quiz (12 questions x 5 points each = 60 points)
  - Lecture Videos (33 videos x 10 points each = 330 points)
  - Homework (11 assignments x 30 points each = 330 points)
  - Comprehensive Exam (35 questions x 8 points each = 280 points)
- Grading Scale: The following grading scale (in points) will be used for the course:
  - A = 900 to 1000
  - A- = 880 to 899.5
  - B+ = 860 to 879.5
  - B = 800 to 859.5
  - B- = 780 to 799.5
  - C+ = 760 to 779.5
  - C = 680 to 759.5
  - D = 600 to 679.5
  - E = 0 to 599.5
- Compliance: Grading in this class is consistent with [UF Grading Policies](#).

### Section 4: UF Policies Shaping This Course

#### Contact Hours:

"Contact Hours" refers to the hours per week in which students are in contact with the instructor, excluding office hours or other voluntary contact. The number of contact hours in this course (3) equals the number of credits offered for the course (3).

### Workload:

As a Carnegie I, research-intensive university, UF is required by federal law to assign at least two hours of work outside of class for each contact hour. Work done in these hours may include reading/viewing assigned material and doing explicitly assigned individual or group work, as well as reviewing notes from class, synthesizing information in advance of exams or papers, and other self-determined study tasks.

### Accommodation for Students with Disabilities:

Students with disabilities who experience learning barriers should connect with the Disability Resource Center to [initiate the process of requesting accommodations](#). This class supports the needs of different learners. It is important for students to **SUBMIT** their accommodation letters to the instructor and **REVIEW** their access needs with the instructor at the very beginning of the semester.

### Course Evaluations:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing end-of-semester course evaluations online via GatorEvals, which provides [guidance on how to give feedback in a professional and respectful manner](#). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [the evaluation system](#). Summaries of course evaluation results are available to students at the [public results website](#). Students will have at least one additional opportunity to provide anonymous feedback during the semester through GatorEvals Midterm Evaluations and/or another mechanism.

### Course Recording:

Class and other open/group sessions may be aurally and/or visually recorded for students in the class to refer back to and for use of enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded. If you are unwilling to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

### Section 5: Additional Course Policies and Information

#### Honor Code

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor

and integrity by abiding by the [Honor Code](#)." Students are required to adhere to the Honor Code in all aspects of the course. On all work submitted for credit in the course, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, students are obligated to report any condition that facilitates academic misconduct to appropriate personnel. 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. If you have any questions or concerns, please consult with the instructor or TAs in this class.

#### University Police

The [University Police](#) are together for a safe campus.

Phone (non-emergencies): (352) 392-1111

Phone (emergencies): 9-1-1

Email: <https://police.ufl.edu/contact/contact-upd/>

#### Career Connections Center

The [Career Connections Center](#) connects job seekers with employers and offers guidance to enrich your collegiate experience and prepare you for life after graduation.

Phone: (352) 392-1601

Email: [UFCareerCenter@ufsa.ufl.edu](mailto:UFCareerCenter@ufsa.ufl.edu)

#### Counseling and Wellness Center

The [Counseling and Wellness Center](#) provides counseling and support as well as crisis and wellness services including a [variety of workshops](#) throughout the semester.

Phone: (352) 392-1575

#### Dean of Students Office

The [Dean of Students Office](#) provides a variety of services to students and families, including [Field and Fork](#) (UF's food pantry) and [New Student and Family programs](#).

Phone: (352) 392-1261

## Disability Resource Center

The [Disability Resource Center](#) helps to provide an accessible learning environment for all students by providing support services and facilitating accommodations, which may vary from course to course. After registering and meeting with the DRC, students will receive a current accommodation letter that **MUST** be reviewed with the instructor in order for accommodations to be implemented in the course. Students should follow this procedure at the very beginning of the semester.

## Multicultural and Diversity Affairs

[Multicultural and Diversity Affairs](#) provides a wide range of services, educational opportunities, learning, support, outreach, activities, and engagement for students.

Phone: (352) 294-7850

## Office of Student Veteran Services

[The Office of Student Veteran Services](#) assists student military veterans with access to benefits.

Phone: (352) 294-2948

Email: [vacounselor@ufl.edu](mailto:vacounselor@ufl.edu)

## ONE.UF

[ONE.UF](#) is the home of all the student self-service applications, including access to:

- [Advising](#)
- [Bursar](#) (352-392-0181)
- [Financial Aid](#) (352-392-1275)
- [Registrar](#) (352-392-1374)

## Official Sources of Rules and Regulations

The official sources of rules and regulations for UF students are the [Undergraduate Catalog](#) and [Graduate Catalog](#). Quick links to other information have also been provided below.

- [Student Handbook](#)
- [Student Responsibilities](#), including academic honesty and student conduct code
- [e-Learning Supported Services Policies](#) includes links to relevant policies including Acceptable Use, Privacy, and many more
- [Accessibility](#), including the Electronic Information Technology Accessibility Policy and ADA Compliance
- [Student Computing Requirements](#), including minimum and recommended technology requirements and competencies

# Read It : STA 4183 Fall 2020 List of Graded Work

## Course Introduction Quiz

- 12 questions x 5 points each = 60 points total
- overview of course policies from Pre-Module 0
- 30 minute time limit
- take and submit in Canvas

## Lecture Videos

- 33 videos x 10 points each = 330 points total
- three videos per week throughout the semester
- approximately 30 to 60 minutes for each video
- view in Canvas using Mediasite

## Homework

- 11 assignments x 30 points each = 330 points total
- one assignment per week throughout the semester
- approximately 6 to 12 questions for each assignment
- approximately 3 to 6 hours for each assignment
- upload and submit in Canvas

## Comprehensive Exam

- 35 multiple-choice questions x 8 points each = 280 points total
- covers all course content from Module A to Module J
- 3 hour time limit
- take and submit in Canvas using Honorlock proctoring service

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### **STA 4183 Fall 2020 Tentative Course Schedule:**

Week of

Lessons

Assignments

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Aug 31	0 = Course Introduction	Intro Quiz due Sun Sep 6
Sep 7	A1 = Simple Interest and Discount A2 = Compound Interest and Discount A3 = Nominal Interest and Discount	HW A due Sun Sep 13
Sep 14	A4 = Force of Interest and Discount A5 = Varying Rates of Interest and Discount A6 = Equations of Value	HW AA due Sun Sep 20
Sep 21	B1 = Annuities Immediate and Due B2 = Annuities Payable Less Frequently B3 = Annuities Payable More Frequently	HW B due Sun Sep 27
Sep 28	B4 = Geometric Annuities B5 = Arithmetic Annuities B6 = Continuous and Varying Annuities	HW BB due Sun Oct 4
Oct 5	C1 = Dollar-Weighted Yield Rates C2 = Time-Weighted Yield Rates D1 = Loan Payments	HW C due Sun Oct 11
Oct 12	D2 = Loan Amortization D3 = Balloon and Drop Payments E1 = Bond Pricing	HW D due Sun Oct 18
Oct 19	E2 = Bond Amortization E3 = Bond Intermediate Valuation E4 = Callable and Puttable Bonds	HW E due Sun Oct 25
Oct 26	F1 = Duration F2 = Convexity F3 = Approximations of Value	HW F due Sun Nov 1
Nov 2	G1 = Cash Flow Matching G2 = Immunization H1 = Spot and Forward Rates	HW G due Sun Nov 8
Nov 9	H2 = Interest Rate Swaps H3 = Deferred Swaps J1 = Term Structure Theory	HW H due Sun Nov 15
Nov 16	J2 = Defaults and Inflation J3 = Types of Securities J4 = Banking Systems	HW J due Sun Nov 22
Nov 23	-----	Thanksgiving
Nov 30	Comprehensive Exam	Thu Dec 3, 2:00p-5:00p