

# Stat 444, Advanced Long-Term Actuarial Math, Winter 2026

TuTh 9:30-10:45 am, 1159 WVB

## Instructor

Brian Hartman, PhD, ASA

2193 WVB, 801.422.5647

[hartman@stat.byu.edu](mailto:hartman@stat.byu.edu), <http://hartman.byu.edu>

Office Hours: TuTh 2-3, W 10-11

## Course Aim and Goals

We will cover advanced topics in life insurance and retirement. We will discuss multiple state models, joint lives, profit analysis, options, universal life and pensions. This course covers all the material on exam ALTAM.

## Course Assessment

Homework Assignments	20%
Midterm Exam	30%
Final Exam	50%

## SOA University Earned Credit

This course qualifies for the SOA University Earned Credit program for exam ALTAM. If you score at least 85% in this course, you will receive credit for exam ALTAM.

## Teaching Assistants

Michael Chang, [mc2492@student.byu.edu](mailto:mc2492@student.byu.edu)

Office Hours: TuTh 11-2, F 9-1

Brett Pedersen, [bip22@student.byu.edu](mailto:bip22@student.byu.edu)

Office Hours: MWF 1-3

## Course Webpages

BYU Learning Suite and

<http://hartman.byu.edu/docs/stat444.html>

## Optional Textbook and Reading

- *Actuarial Mathematics for Life Contingent Risks, 3rd Ed.* by Dickson, Hardy, and Waters.
- SOA study note on Variable Annuity Guarantees

## Exams

Exams are closed-book, closed-note (other than the SOA tables and formula sheet), and cumulative. The midterm exam will be held in class on February 26<sup>th</sup>. The final exam will be in class at our assigned time during finals week, currently Friday April 17<sup>th</sup>, 7-10 am.

## Homework

You will have approximately biweekly homework assignments. Homework is due in class on the due date. No late homework will be accepted. Submit the assignment either in class or on Learning Suite. I will drop your lowest assignment in the calculation of your final grade.

## Course Schedule

Week of	Topics Covered	Assignments
5-Jan	Multiple State Models	
12-Jan	Multiple State Models	
19-Jan	Long-term Health Coverages	
26-Jan	Long-term Health Coverages	HW #1
2-Feb	Multiple Lives and Decrements	
9-Feb	Multiple Lives and Decrements	HW #2
16-Feb	Profit Analysis	
23-Feb	Profit Analysis	
2-Mar	Pensions and Retirement	HW #3
9-Mar	Pensions and Retirement	
16-Mar	Universal Life	HW #4
23-Mar	Universal Life	HW #5
30-Mar	UL/Embedded Options	
6-Apr	Embedded Options	HW #6
13-Apr	Embedded Options	HW #7

## Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

## Preventing & Responding to Sexual Misconduct

In accordance with Title IX of the Education Amendments of 1972, Brigham Young University prohibits unlawful sex discrimination against any participant in its education programs or activities. The university also prohibits sexual harassment—including sexual violence—committed by or against students, university employees, and visitors to campus. As outlined in university policy, sexual harassment, dating violence, domestic violence, sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by the university.

University policy requires all university employees in a teaching, managerial, or supervisory role to report all incidents of Sexual Misconduct that come to their attention in any way, including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of Sexual Misconduct should be reported to the Title IX Coordinator at [t9coordinator@byu.edu](mailto:t9coordinator@byu.edu) or (801) 422-8692. Reports may also be submitted through EthicsPoint at <https://titleix.byu.edu/report> or 1-888-238-1062 (24-hours a day).

BYU offers confidential resources for those affected by Sexual Misconduct, including the university's Victim Advocate, as well as a number of non-confidential resources and services that may be helpful. Additional information about Title IX, the university's Sexual Misconduct Policy, reporting requirements, and resources can be found at <http://titleix.byu.edu> or by contacting the university's Title IX Coordinator.

## Student Disability

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability

which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

## Mental Health Services

Barriers to learning are created by stress, anxiety, family and relationship concerns, and personal crises. If stressful life events or mental health concerns are inhibiting your ability to participate in daily activities or leading to diminished academic performance, please contact the BYU Counseling and Psychological Services (CAPS; 1500 WSC, [801-422-3035](http://801-422-3035), [caps.byu.edu](http://caps.byu.edu)). CAPS provides individual, couples and group counseling to students. These services are confidential and are provided by the university at no added cost to you. Professional psychologists and counselors who specialize in helping college students are available 24-hours a day to assist students in crisis; if you have an emergency during non-business hours (5pm-8am), please contact BYU Police Dispatch ([801-422-2222](http://801-422-2222)) who will put you in touch with a counselor.

## Sexual Assault Survivor Resources

If you or someone you know experienced sexual assault, BYU's Sexual Assault Survivor Advocacy Services (SASAS) can help. SASAS can provide information, support, and connect you to the resources you may need. SASAS services are free and confidential.

Phone: 801.422.9071

Email: [advocate@byu.edu](mailto:advocate@byu.edu)

Web: <https://advocates.byu.edu/>

Location: 1500 WSC

National Sexual Assault Hotline: 1-800-656-4673