

# Math1126 Predictive Analytics 1 SYLLABUS

**Instructor:** Dr. Sheng Xiong

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**Office:** Thackeray Hall, 508

**Office Phone:** 412-624-2877

**Office Hours:** TTH 9: 00am-10: 00am or by appointment

**Class Meetings:** MWF 10 -10:50am, TBD

**Web:** The Canvas page for this course will contain assignments, handouts, due dates, and announcements.

## Calculator:

TI-30Xa, TI-30X II (IIS solar or IIB battery) or TI-30XS MultiView (or XB battery) are recommended.

## Course Materials/Texts:

1. *Regression Modeling with Actuarial and Financial Applications*, Edward W. Frees, 2010, New York: Cambridge. ISBN: 978-0521135962.

2. *An Introduction to Statistical Learning, with Applications in R*, James, Witten, Hastie, Tibshirani, 2013, New York: Springer. A PDF version of the text can be downloaded at <http://faculty.marshall.usc.edu/gareth-james/ISL/>

3. *ASM Study Manual for SRM- Statistics for Risk Modeling* | 2<sup>nd</sup> Edition, Weishaus | ASM. ISBN: 978-1-64756-065-2

You can order it at:

<https://www.actexamdriver.com/orderselection.aspx?id=453142457>

**Course Objectives:** This course is devoted to predictive analytics education by covering key concepts of statistical learning and the R programming language (aka machine learning). It provides the transition from mathematical statistics to predictive analytics and its applications. It covers the regression and time series topics as well as generalized linear models, principal component analysis, decision tree models, and cluster analysis. This course follows the syllabus for *Statistics for Risk Modeling* (SRM) Exam of the Society of Actuaries and prepares students to pass the SRM Exam.

You are highly encouraged to visit the SOA Exam SRM website for recent updates on the exam syllabus, including updates to sample exam questions.

**Prerequisite:** Math 1119

## Assessments:

1. Homework 30%: Homework will be assigned weekly.
2. Three exams 70%: Two midterms (20% each) and one Final exam (30%) (TBD)

Final grade will be based on homework and exams.

**Grading Scale:** A+ (97-100%), A (93-96%), 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%), F(<60%)

For the official Exam SRM syllabus and registration information, visit the SOA website at

<https://www.soa.org/globalassets/assets/files/edu/2020/2020-09-exam-srm-syllabi.pdf>

**Makeup policy:** Makeup examinations will be granted only for excused absences (prior approval of the instructor for required travel, or verifiable medical doctor's excuse). **Makeups for exams must be scheduled within twenty four hours of the originally scheduled exam time.** Failure to contact the instructor (Dr. Xiong) within this twenty four hour period with a valid medical/travel excuse will result in a zero for that examination.

## Disability Resource Services

*If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890, as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.*

## Academic Integrity Policy

*All students are expected to adhere to the standards of academic honesty. Cheating, plagiarism, and other acts of academic dishonesty will not be tolerated. Any student suspected of violating the University of Pittsburgh Policy on Academic Integrity: <https://www.as.pitt.edu/faculty/policies-and-procedures/academic-integrity-code> will be required to participate in the procedural process as initiated by the instructor, as outline in the University Guidelines on Academic Integrity. A minimum sanction of a zero score for the quiz, exam or paper will be imposed. You should note that only those resources explicitly authorized by the instructor can be used to complete assignments. Assessments are designed so that you learn by doing them. Copying homework or exam answers from outside sources and other such violations of the academic integrity code will not solidify your learning. Passing a course without adequate mastery of the material can set you up for limited success in subsequent courses. Also it is a violation of the academic integrity code to share any question from an assignment or an exam in any form. The instructor may choose to post a solution set after the assessment, but remember that assessments written by the instructor are copyrighted materials and you are not permitted to distribute them in any way. If you inadvertently have access to a shared exam or homework question, then you are obligated to inform the instructor. Remember, academic integrity is not about what you can get away with. It is about personal accountability, honor, ethics, respect, trust, and fairness.*

**DIVERSITY AND INCLUSION STATEMENT:**

*The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see:*

<https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>

*I ask that everyone in the class strive to help ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing [titleixcoordinator@pitt.edu](mailto:titleixcoordinator@pitt.edu). Reports can also be filed online:*

*<https://www.diversity.pitt.edu/make-report/report-form>. You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the University Counseling Center (412-648-7930).*

**E-mail Communication Policy**

*Each student is issued a University e-mail address (username@pitt.edu) upon admittance. The University for official communication may use this e-mail address with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on **Edit Forwarding Addresses**, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, go to [www.bc.pitt.edu/policies/policy/09/09-10-01.html](http://www.bc.pitt.edu/policies/policy/09/09-10-01.html).)*

**STATEMENT ON CLASSROOM RECORDING:** *To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the students' own private use.*