

**Math 472 (8 students enrolled)**  
**Spring 2018 Syllabus**

Instructor: Gautier Picot  
Office: PSB 320  
Office Hours: M 1:30pm–2:30pm, T 10:30am–11:30pm, R 12:30pm–1:30pm, F 10:30am–11:30am and by appointment.  
Email: gautier@math.hawaii.edu  
Website: [http://www.math.hawaii.edu/~gautier/472\\_spring18.html](http://www.math.hawaii.edu/~gautier/472_spring18.html)  
Class Meeting: MWF 11:30 a.m – 12:20 a.m in Keller 404

All major announcements will also be posted to the course website (e.g. exam dates).

Text: *Probability and Statistics, fourth edition* by DeGroot and Schervish.

Course Description: The course presents fundamental tools of statistical inference. Topics include estimation, sampling distributions of estimators, testing hypothesis and regression.

Approximate timeline:

- Week 1: Review of the important continuous distributions: uniform, normal, students-t,  $F$ , Beta. Mean, expected value, variance, covariance, independence. Central limit theorem.
- Week 2-Week 6: Chapter 7, sections 1-6. Estimation: notion of statistical inference, prior and posterior distributions, conjugate prior distributions, Bayes estimators, maximum likelihood estimators and their properties.
- Weeks 7-10: Chapter 8, sections 1-5 and 7. Sampling distributions and estimators: sampling distribution of a statistic,  $\chi^2$  distributions, joint distributions of the sample mean and sample variance,  $t$ -distributions, confidence intervals, unbiased estimators.
- Weeks 11 -14: Chapter 9, sections 1 and 5-7. Testing hypothesis: problems of testing hypothesis,  $t$ -test, comparing the means of two normal distributions, the  $F$  distributions.
- Weeks 15-16: Chapter 11, sections 1 and 2. Methods of Least squares and Regression.

Exams: There will be two in-class exams.

- First exam: Friday, February 23rd. Program: Chapters 7, sections 1-6.
- Second exam: Friday, March 23rd. Program: Chapter 8, sections 1-4 and 7.

Homework: Three homeworks will be collected this semester:

- Hw1 will be assigned on Friday February 2nd and due on Friday February 16th. Program: Chapter 7, sections 1-6.
- Hw2 will be assigned on Friday March 2nd and due on Friday March 16th. Program: Chapter 8, sections 1-4 and 7.
- Hw3 will be assigned on Monday April 16th and due on Monday April 30th. Program: Chapter 9, sections 1 and 5-7 and Chapter 11, section 1 and 2.

The homeworks will be due at the beginning of the class. Late work will not be accepted.

For each section covered in class, a list of reading assignments and non mandatory suggested problems from the textbook will be posted on the course website, to help you study and get ready for the in-class and final exams. The in-class and final exams will most likely be based on those suggested problems.

Final Exam: There will be a cumulative final exam on **Friday, May 11th from 9:45am to 11:45a.m.** By registering for this section, you are accepting the fact that you must be present during the scheduled final exam. Early exams will not be given.

Grading: Homework counts 20%, the worst in-class exam counts 20%, the best in-class exam count 25% and the final exam counts 35%. **The grades will NOT be curved.** Below is the grading system that will be used:

Letter Grade	Overall score (in %)
A+	95-100
A	92-94
A-	90-91
B+	85-89
B	82-84
B-	80-81
C+	75-79
C	67-74
D	50-66
F	0-49 or if the final exam is not taken

Collaboration: You are encouraged to study together, and to consult me as much as you want. Talking about mathematics with other people is one of the best ways to learn it. However, exams are individual activities, with no collaboration of any kind allowed. The departmental statement of academic expectations applies to all students and can be found on the Math Department web page: [www.math.hawaii.edu](http://www.math.hawaii.edu) under the tab Undergraduate.