



STA 2171 Statistics for Biology

Section 02

Florida State University - Department of Statistics

Fall 2018 Course Syllabus

Class Meeting Information:

Class Meeting Time: Monday & Wednesday 5:15 pm - 6:30 pm; Friday 12:20 pm – 1:10 pm

Location: Mon & Wed – OSB 110; Friday – HCB 312

Final Exam: Wednesday Dec 12th, 5:30 pm – 7:30 pm @ OSB 110

Instructor: Qing Han

E-mail: qing.han@stat.fsu.edu

Office hours: Tuesday 3pm - 4 pm (or by appointment via email)

Office: OSB 201G

Textbook (Optional): Myra L. Samuels, Jeffrey A. Witmer, and Andrew A. Schaffer, *Statistics for the Life Sciences*, 5th Edition, published by PEARSON.

Calculator (**Required**): TI-84 Plus or equivalent.

Course Description:

Prerequisite: MAC 2311 Calculus I and Biology major status, or department approval.

Credit Hours: 4

Special Note: No credit given for STA 2171 if a grade of “C-“ or better is earned in STA 3032 or QMB 3200.

This course provides an introduction to statistics emphasizing applications in Biology. Topics include descriptive statistics, elementary probability, the binomial and normal distributions, confidence intervals and hypothesis tests for means and proportions, correlation and regression, contingency tables and goodness-of-fit tests, analysis of variance and non-parametric tests.

The purpose of this course is to prepare students for further study and job preparation in the field of Biological Sciences including Medicine, Dentistry, and other healthcare professions, Veterinary Medicine, Zoology and Botany. It will emphasize understanding of data and



interpretation of statistical analyses. It will require students to think of data, and report the results of their analyses, in context.

Course Objectives:

- **Quantitative and Logical Thinking**
This course has been approved to meet FSU's **Liberal Studies Quantitative and Logical Thinking** requirements and is designed to help you become a critical analyst of quantitative and logical claims.
In order to fulfill the State of Florida's College mathematics and computation requirement the student must earn a "C-" or better in the course.
- By the end of the course, students will demonstrate the ability to:
 - (1) Select and apply appropriate methods (i.e., mathematical, statistical, logical, and/or computational models or principles) to solve real-world problems.
 - (2) Use a variety of forms to represent problems and their solutions.
The above two competencies will be assessed in the Liberal Studies Quantitative Assessment for STA 2171, which includes a written summary of results.
 - (3) Use descriptive statistics and graphical methods to summarize data accurately.
 - (4) Use inferential statistics to make valid judgments based on the data available.
 - (5) Select the appropriate statistical tools to analyze a particular problem.
 - (6) Describe the goals of various statistical methodologies conceptually.
 - (7) Develop a healthy skepticism toward statistical studies and their results based on a sensible consideration of the techniques employed.

Grade Structure:

- **Quizzes (40%)** – There will be 3 quizzes during the semester. Your lowest quiz grade will be allocated 10% of your grade, and the other two will equally worth 15% of your grade. There is one class day set aside for making up quiz (see make-up policies below). At each quiz you may use ONE self-planned self-handwritten two-sided 8.5"x11" sheet of notes.
- **Activities (10%)** – There will be 5-8 activities covering concepts from lectures throughout the semester. These activities will typically be done in small groups during certain Friday classes. These will not be graded for accuracy. Students will receive full credit if they are present and participating. Missed activities cannot be make up.
- **Liberal Studies Quantitative Assessment (10%)** – As you may know, STA 2171 have been certified as one of FSU's Liberal Studies Quantitative and Logical Thinking courses. As a requirement, we must administer the appropriate Liberal Studies Quantitative Assessment (LSQA) during the semester. This will be a common assessment (not final exam). Time length will be about 50 mins.



- **Attendance (10%)** – I’ll randomly check the attendance 10 times, 8 “presence” gives you the full credit for attendance.
- **Homework (0%)** – Homework problems will be given after lecture, but they will not be turned in or graded. They are for you to gain practice in preparation for the quizzes. Be careful there might be similar questions in exams!
- **Final Exam (30%)** – The final exam will be administered on Wednesday Dec 12th, 5:30 pm – 7:30 pm in room OSB 110. At the final exam you may use TWO self-planned self-handwritten two-sided 8.5”x11” sheet of notes.

Final Letter grade will be calculated based on the following chart. I will round your overall course grade UP to the next higher whole number before matching it to a letter grade.

FSU does not award A+	B+	87 – 89	C+	77 – 79	D+	67 – 69	F	≤59	
A	≥93	B	83 – 86	C	73 – 76	D			63 – 66
A-	90 – 92	B-	80 – 82	C-	70 – 72	D-			60 – 62

Important Dates:

- First Day Attendance: Please meet the “First Day Attendance” requirement of FSU, otherwise you will be dropped from the class automatically.
- 3 Quizzes: September 21st, October 19th, November 19th. (tentative)
- LSQA: November 2nd. (tentative)
- Holidays: September 3th, November 12th, November 21st – 23rd.
- Final Exam: Dec 12th 5:30 pm – 7:30 pm @ OSB 110.

Grading Appeals:

During the course of the term, if you believe that a paper was improperly graded, please come to my office hour, (or make an appointment with me) to discuss about it within **ONE WEEK** that the grade is posted on Canvas. If no complaints are voiced within that time frame, it is assumed that the grade is accepted.

Absence:

If you have to miss a quiz, you need to send me an email at least **ONE DAY** before the quiz, and remember to provide the documentation for your absence. If you miss a quiz without notifying me or without documentation, then you will get zero for that quiz.



If you have to be absent for class/activity/quiz because of a religious holiday, please notifying me **WITHIN THE FIRST TWO WEEKS** of the semester.

If you have absolute emergency issues, please send me emails as soon as possible and we can go from there.

Make-up Policy:

There will be one quiz make-up day on Dec. 7th. A quiz that has not yet been taken can be made up on that day. Quiz retakes are not allowed. If you miss more than two quizzes because of circumstances beyond your control, which may include medical illness, deaths in family, legal issues, etc., the instructor will make necessary arrangements to facilitate completion of quizzes once a suitable, timely, and acceptable written excuse is submitted.

Classroom Policies:

The classroom environment is an important factor for effective learning. To avoid distractions and disruptions during class, please follow the following policies, in addition to all University policies:

- Come to the class **on time**.
- No food or drink is allowed in the classroom.
- Silence all phones.
- Please do not talk or distract others during lecture.
- Please show respect for everyone in the classroom.
- The instructor reserves the right to assign and reassign seats if needed.



Tentative Pacing Schedule:

Week	Monday	Wednesday	Friday
1	Introduction Aug 27	Sampling, Graphs Aug 29	Activity 1 Aug 31
2	Labor Day - No class Sep 3	Summary Statistics Sep 5	TBA Sep 7
3	Summary Statistics Sep 10	Probability Sep 12	Activity 2 Sep 14
4	Probability Sep 17	Random Variables Sep 19	Quiz 1 Sep 21
5	Binomial Distribution Sep 24	Normal Distribution Sep 26	TBA Sep 28
6	Normal Distribution Oct 1	Central Limit Theorem Oct 3	Activity 3 Oct 5
7	One-sample Mean Oct 8	One-sample Mean Oct 10	TBA Oct 12
8	One-way Hypo Testing Oct 15	One-way Hypo Testing Oct 17	Quiz 2 Oct 19
9	Chi-square Tests Oct 22	Chi-square Tests Oct 24	TBA Oct 26
10	One-way ANOVA Oct 29	One-way ANOVA Oct 31	LSQA Nov 2
11	Two-way ANOVA Nov 5	Two-way ANOVA Nov 7	Activity 4 Nov 9
12	Veterans Day - No class Nov 12	Nonparametric Test Nov 14	TBA Nov 16
13	Quiz 3 Nov 19	Thanksgiving Holiday Nov 21	Thanksgiving Holiday Nov 23
14	Simple Linear Regression Nov 26	Simple Linear Regression Nov 28	Activity 5 Nov 30
15	Multiple Linear Regression Dec 3	Final Exam Review Dec 5	Quiz make-up day Dec 7
Final Week			



University Attendance Policy:

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

If you miss class, I expect you to keep up-to-date with the lessons, activities and announcements by getting in touch with a classmate or with me, and by reading the Class notes on our STA2171 course site on Canvas.

Academic Honor Policy:

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University."

Americans With Disabilities Act:

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Student Disability Resource Center; and
- (2) bring a letter to the instructor indicating the need for accommodation and what type.

Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

sdrc@admin.fsu.edu

<http://www.disabilitycenter.fsu.edu/>

Syllabus Change Policy:

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.