Syllabus for BIOL 339: Statistical Design
Spring 2021

Asynchronous Online Lecture

Instructor: Dr. Althea A. Archer

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The schedules and policies associated with this course may be subject to revision or change as a consequence of changing circumstances or events. Reasonable notification will be provided to students prior to any major changes in course policies or procedures.

Contact Me: The best ways to get ahold of me are by visiting my virtual office hours or by emailing me. I will always try to get back to emails within 48 hours. **Begin emails with "BIOL 339"** so that I can prioritize your email.

Course Description

Statistical technique selection, design, and interpretation for biology majors. Supplement to STAT 239.

Learning Outcomes

This course is designed for students majoring in biology, as a companion to STAT 239 (Statistics for the Biological and Physical Sciences). BIOL 339 is designed to add conceptual context to STAT 239 by teaching you how a biologist looks at and applies statistical techniques. By the end of the semester, you should be able to:

- Recognize statistical designs appropriate to a variety of experiments & observational studies.
- Select statistical techniques appropriate to selected experimental design.
- Make appropriate interpretations from statistical applications

BIOL 339 will reinforce parts of STAT 239 related to experimental design, technique selection and interpretation, and will teach you how biologists recognize the differences among experiments and research projects that lead you to selecting the correct technique to your data. **If you have not taken a general course in statistics and are currently not enrolled in STAT 239, you probably should not be in BIOL 339.**

Because BIOL 339 functions simultaneously as a supplement to STAT 239, BIOL 339 is conducted online via Desire2Learn (D2L). This will make it possible for all biology students to take essentially the same BIOL 339 course, regardless of which section, date and time their STAT 239 meets.

Required Textbooks

- BIOL 339 does not require a separate textbook. However, if you are concurrently enrolled in STAT 239 and BIOL 339, having your copy of the STAT 239 text assigned in that course will be helpful.

Online Code of Conduct:

It is my intent that students from diverse backgrounds and perspectives be well-served by this course, and that the diversity that students bring to this class be viewed as a resource. As a student in this class, you are required to treat other members of the class with respect and kindness. Diverse perspectives are welcome and disagreeing is fine. However, disrespectful, rude, or exclusive behavior will not be tolerated.

Grades

Staying on top of material in class is critical to your success. Lectures will be convened online via asynchronous video recordings that will have embedded quizzes. During lecture videos, new material will be discussed in context to previous modules. Each module builds upon previous material. Each module topic is accompanied by a homework assignment due before the next module video will be released. There will also be a discussion board for each module on D2L. Occasionally, I will post review videos in which I will review concepts and work through homework answers.

Generally, each module ($\sim$2 weeks) will include a video with quizzes and a homework assignment. The schedule for assignment due dates is also viewable on D2L. The video quizzes will be graded as pass/fail and will be a way for you to check your understanding before starting the homework assignment. After you have completed watching the video and taking the video quiz, you will then be able to download and complete the homework assignment and associated quiz in D2L.

Item	Details	Points	%
Lecture Video Quizzes	5 points each (pass/fail)	35	35
Assignments/Quizzes	5 points each	35	35
Final Exam	Dec. 10	30	30
Total		100	100

Percentage	Grade
≥ 99	A+
92-98.9	A
90-91.9	A-
89-89.9	B+
82-88.9	B
80-81.9	B-
79-79.9	C+
72-78.9	C
70-71.9	C-
69-69.9	D+
60-68.9	D
< 60	F

Assignments & Quizzes are D2L "quizzes" that are associated with homework assignment. You may take the quiz a second time to revisit any questions that you got incorrect on the first attempt.

You will have approximately two weeks to complete the lecture video, lecture video quiz, and homework assignment quiz for each module.

Final Exam: There is one D2L exam at the end of the semester that will cover material from the entire course and will be similar to the problems given in the assignments. The final exam is timed, and cannot be taken more than once. The final exam must be completed by yourself.

Posting questions and answers to the discussion board will not give you any points but can boost your final percentage up to 1% in the case of a borderline grade.

Accommodations for Students with Disabilities:

SCSU is an affirmative action, equal opportunity employer and educator. We are committed to a policy of nondiscrimination in employment and education opportunity and work to provide reasonable accommodations for all persons with disabilities. Accommodations are provided on an individualized, as-needed basis, determined through appropriate documentation of need. Please contact Student Accessibility Services (SAS), sas@stcloudstate.edu or 320-308-4080, Centennial Hall 202, to meet and discuss reasonable and appropriate accommodations.

Academic Integrity

As a student at St. Cloud State University and as a student in this class, you are expected to fully and properly acknowledge the work of others. Every instance of plagiarism will be reported, as per the policies of the college, but please do not hesitate to ask me in advance if you think something might be questionable or if you are unsure about what is considered to be plagiarism. I am happy to help, as long as you inquire in advance!

Academic misconduct includes but is not limited to:

- cheating: using a resource other than one's own work to answer questions;
- plagiarism: misrepresenting another's ideas as one's own or not giving credit to the creator of a work;
- falsification: submitting falsified or fabricated information;
- facilitating others' violations: knowingly permitting or facilitating the dishonesty of others;
- impeding: placing barriers in the way of others' academic pursuits'

Instances of academic dishonesty will result in either a failing grade for that activity or for the course, according to the perceived intent and extent of the instance(s) of academic dishonesty. All academic integrity violations will be reported.

Course Schedule (version dated August 23, 2021)

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Aug 23rd **Module 1:** Individuals & Variables Begins	24th	25th	26th	27th
30th	31st	Sep 1st	2nd	3rd Module 1 Due
6th *No classes*	7th **Module 2:** Summarizing Quantitative Variables Begins	8th	9th	10th
13th	14th	15th	16th	17th Module 2 Due

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
20th **Module 3:** Analyzing Quantitative Variables Begins	21st	22nd	23rd	24th
27th	28th	29th	30th	Oct 1st Module 3 Due
4th **Module 4:** Summarizing Categorical Variables Begins	5th	6th	7th	8th
11th	12th	13th	14th	15th Module 4 Due
18th **Module 5:** Analyzing Categorical Variables Begins	19th	20th	21st	22nd
25th	26th	27th	28th	29th Module 5 Due
Nov 1st **Module 6:** Categorical & Quantitative Variables Begins	2nd	3rd	4th	5th
8th	9th	10th	11th *No classes*	12th Module 6 Due
15th **Module 7:** Experimental Design Begins	16th	17th	18th	19th
22nd *No classes*	23rd *No classes*	24th *No classes*	25th *No classes*	26th *No classes*
29th	30th	Dec 1st	2nd	3rd Module 7 Due
6th	7th	8th	9th	10th Final Exam