Introduction to Scientific Analysis (Bio 100): Course Information

Fall 2015

Instructor:

Dr. Ron Coleman Office: 119 Humboldt
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Course Location & Times:

Lecture:	#81848	Friday 8:00 to 8:50 am	Room 456 SQU
Activity:	#81940	Thurs 9:00 to 10:50am	Room 118 SQU
Activity:	#81941	Thurs 11:00 to 12:50pm	Room 118 SQU
Activity:	#81942	Thurs 1:00 to 2:50pm	Room 118 SQU

Each student must attend both the lectures and one activitiy section. Please note that the particular approaches, assignments, etc. used in the different Activity Sections may vary, but the essence of the material remains the same. .

Office hours:

Ron Coleman Wed 2:00 - 5:00pm Room 119 HMB

Course Catalog description:

BIO 100. Introduction to Scientific Analysis. Covers anatomy of scientific literature, reading and writing scientific papers, proper citation formats, basic interpretation of tables and figures, graphical analysis, basic statistical analysis, experimental design to effectively test a hypothesis, and effective presentation of an experiment. Lecture one hour. Activity two hours. Note: Course cannot be taken concurrently with or after taking BIO 167 Prerequisite: BIO 1, BIO 2, and STAT 1; declared Biological Sciences majors only or instructor consent. Graded: Graded Student. Units: 2.0

Learning Objectives:

Students should be able to:

- Read and interpret a scientific paper
- Produce relevant tables and graphs given different types of data
- Conduct a literature search on a topic
- Develop an hypothesis that can be tested
- Perform basic statistical analyses
- Write an effective scientific paper
- Orally and visually present results to a group of peers

Attendance and Deadlines:

I expect you to attend every lecture and activity; you miss class at your own risk.

Anything I say is fair game for exams, whether it is in the text or not. Some things I say will definitely not be in the text, and some may contradict the text. In the latter case, what I say is taken to be the correct answer. If there is a difference between what I say and what is in the text or what you have learned elsewhere, **please ask about** it in lecture or after class and we will discuss the differences.

My goal as a lecturer is to guide and assist you in learning about this material. I cannot do that if you are not in class or if you do not tell me what you do not understand.

If you miss a class, it is your responsibility to get the notes from another student, not from me. I DO NOT hand out lecture notes, nor do I post them to the web.

Deadlines are strictly adhered to. It is not fair to students that complete work on time for other students to have extra time to do the same work. Plan ahead and schedule your time. Most importantly, don't leave things to the last minute; you don't need that kind of stress!

Textbook:

Ambrose, H.W., K.P. Ambrose, D.J. Emlen, K.L. Bright 2007. A Handbook of Biological Investigation. 7th Edition. Hunter Textbooks, Winston-Salem, North Carolina. **REQUIRED**. ISBN: 0-88725-331-8

Exams:

There will be a midterm and a final for the course. The midterm will be held during the lecture period and will be a mixture of short-answer and essay questions. I do not believe in multiple choice questions and do not use them.

Exams will be comprehensive, i.e., anything in the whole course up to that point in time is fair game. My previous students comment on two aspects of my exams: I am a hard grader and I am a fair grader. You can expect long exams that test your knowledge, but they will be exams without tricks. My goal is to have you tell me what you know and understand. You will have to work very quickly.

Grading:

This course is worth 2 units.

The number of points/questions on a particular exam is irrelevant to the exam's worth -- it is merely a tool for grading. What matters are the following percentages.

Your lecture grade will be calculated according to the following scheme:

Midterm	40
Final Exam	40
Term Paper	20

	100%

Your course grade will be calculated as follows:

Lecture grade = 60%
Activity grade = 40%

Your course letter grade will be calculated according to the following table:

A = 93.0 to 100%	C+ = 77 to 79.9%
A- = 90 to 92.9%	C = 73 to 76.9%
B+= 87 to 89.9%	C- = 70 to 72.9%
B = 84 to 86.9%	D+ = 67 to 69.9%
B- = 80 to 83.9%	D = 60 to 66.9%
	F = 0 to 59.9%

I generally do not adjust or curve or scale grades; If you want an "A", work for it and make it happen!

I do not hesitate to correct any errors I make in grading (e.g., incorrect addition or if I missed grading an answer), but keep in mind that I am looking for clear, succinct answers, not answers that sort-of-show-you-possibly-might-know-what-you-mean. If you feel that your answer deserves a better grade, please return it to me promptly.

I do not use "extra credit" assignments.

Honor Code:

Please don't cheat. Besides the fact that we will be forced to take strong measures if we catch you -- including recommending your dismissal from the class and from the university -- I will be profoundly disappointed in you.

Don't even think about doing any of the following:

a. giving or receiving information from another student during an examination
b. using unauthorized sources for answers during an exam such as writing answers on hats, clothing or limbs
c. illegally obtaining the questions before an exam
d. altering the answers on an already-graded exam
e. any and all forms of plagiarism
f. destruction and/or confiscation of school and/or personal property

Feedback:

I appreciate your feedback on this course. It is most useful to tell me things while the course is in progress, rather than waiting until the end of the course. If there is something that needs changing, LET ME KNOW and I will see what I can do about it. This course is a collaboration between you and me. I really enjoy teaching this class and I want you to have a great time as well.

Week	Date	Lecture	Ch
1	Sep 4	Introduction	1, 2
2	Sep 12	Ultimate vs Proximate; Scientific Literature	
3	Sep 18	Central tendency & graphs	3, 4
4	Sep 25	Dispersion, Types of Experiments **Term paper topic due**	5,12
5	Oct 2	Inferential Stats and P values	7
6	Oct 9	Chi-square	8
7	Oct 16	Experimental Design	6
8	Oct 23	t-test **Term Paper Part 1 due**	8
9	Oct 30	**Midterm**	
10	Nov 6	ANOVA	
11	Nov 13	ANOVA	8
12	Nov 20	Correlation & Regression **Term paper final due**	8
13	Nov 27	no class today : Thanksgiving	
14	Dec 4	Presenting science	14
15	Dec 11	tba	
16	Dec 14 MON	**Final Exam** 8-10am ***NOTE THIS DATE***	