

## BIO 370 (Biology Seminar) — section A

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# BIO370: Semi-Intelligent Design: altering the course of evolution

### Description

Warm clothes. Eyeglasses. Antibiotics. Genetically-modified foods. Designer babies. Artificial life. Mankind has been interfering with natural selection pretty much since the moment we appeared on this planet. But with the advent of scientific investigation and our burgeoning understanding of the genetics, biochemistry, and physiology of living things, our ability to interfere with and purposefully channel the course of evolutionary change is exploding. We will be increasingly able to change living things to suit our own whims, but is this a good idea? Can we plan for unplanned consequences? Will these new technologies make life better for all of us, or simply accelerate our inevitable extinction?

In this course we will look at these and related questions from molecular biological, evolutionary, and ethical perspectives and students will present the results of their own research into the literature in both papers and oral presentations. Extensive student participation will be an absolute requirement of the course. This course fulfills the writing intensive requirement for the biology major.

### Classes

Classes will be held in Room 301, Priscilla Payne Hurd Academic Complex  
Mondays, Wednesdays, and Fridays, 7:50 am to 8:40 am

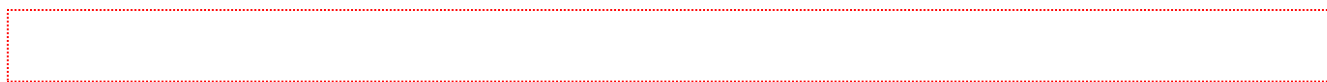
### Texts

Only two (new) books are required for this course, and should be available in the bookstore:

*Liberation Biology: The Scientific and Moral Case for the Biotech Revolution* by Ronald Bailey

*Writing Papers in the Biological Sciences* (4th edition) by Victoria E. McMillan

You will also want to have a good style book, such as *The Bedford Handbook* (whatever edition you have from WRIT100 is fine).



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## Course Objectives

Upon successful completion of this course, students will be able to:

- select and research specific topics in the areas of genetics, evolution, and other areas of biology using both primary and secondary literature sources
- concisely describe a body of research in abstract form
- construct written outlines and drafts based on feedback from peers and the professor
- write research review papers in a proper scientific format
- give concise, well-organized oral presentations to peers
- clearly discuss and answer questions from their peers about their research findings
- offer valuable, constructive criticism on peers' written and oral work

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## Course Policies

### Attendance

I expect that you will make every effort to attend each class session. We have very little time together, and much of it will be spent helping each other, so when you miss a class you've denied some of your classmates a chance to learn.

That said, I understand that sometimes things intervene and make absences unavoidable. Over the course of the semester you can miss one draft-editing session and two presentations (not your own, obviously!) without penalty, provided you have a good reason for missing class. Serious illness is pretty much a minimum for "good" here, and any rescheduling of a missed presentation is entirely at my discretion. If you must miss a class, please let me know in advance if at all possible. It's a question of respect, both for me and for your fellow students.

### Grading

Here is how I will weight the several components of the course:

Literature Review	200 points
Research Proposal	200 points
Article summary	100 points
Abstract exercise	50 points
Peer editing groups	200 points
Presentations	200 points each
Presentation evaluations	150 points
Class participation	100 points
<b>TOTAL</b>	<b>1400 points</b>

Here is the grading scale I use in all my classes:

<b>numeric grade</b>	<b>letter grade</b>
93.3 - 100	A
90.0 - 93.2	A-
86.7 - 89.9	B+
83.3 - 86.6	B
80.0 - 83.2	B-
76.7 - 79.9	C+

73.3 - 76.6	C
70.0 - 73.2	C-
66.7 - 69.9	D+
63.3 - 66.6	D
60.0 - 63.2	D-

Just to review, this is what the Student Handbook has to say about grades:

#### A and A-

These grades are given for achievement of the highest caliber. They reflect independent work, original thinking, and the ability to acquire and effectively use knowledge.

#### B+, B, and B-

These grades are given for higher than average achievement. Evidence of independent work and original thinking is expected.

#### C+, C, and C-

These grades are given when the student has devoted a reasonable amount of time, effort, and attention to the work of the course and has satisfied the following criteria: familiarity with the content of the course, familiarity with the methods of study of the course, and active participation in the work of the class.

#### D+, D, and D-

These grades are given for unsatisfactory work, below the standard expected by the College. They indicate work which in one or more important aspects falls below the average expected of students for graduation. The work is, however, sufficient to be credited for graduation, if balanced by superior work in other courses.

## Late Assignments

Late assignments are *very* bad. We're on a tight schedule, and you need to stay on top of the assignments. Anything you hand in late disrupts my schedule as well as the schedules of your classmates. Late assignments will be penalized 10% of the full value for each day (or fraction thereof) that they are late. This also applies to assignments that simply aren't up to snuff: if you hand in two hand-scrawled pages and expect that to count as a draft, you are going to be disappointed!

## Reading

It is important that you do the reading assigned for any given session (see the [Syllabus](#)) in advance. Discussion of the material is a critical part of the course, and if you haven't read that day's material, you're depriving yourself and your classmates of your most informed and considered opinion.

## Studying Together

Working together is a Good Thing. I encourage you to talk with friends in and out of this course about what you're doing, how effective your writing is, whether the approach you've chosen to take makes sense, whatever. There is no aspect of this course that can't be improved by working with other students on it.

## Academic Honesty

I adhere to the [Academic Honesty policy](#) of the College. There is nothing more important to me than personal integrity - not money, not power, not even Science - and I conduct myself and all of my classes in that spirit. If you're not familiar with College policy, you should be.

## Access for Disabled Students

Our classroom is (as far as I'm aware) accessible to students with impaired mobility. I hope that all of you will avail yourselves of the College's Writing Center as well, as part of your process for improving your written work for the course. However, I am legally required to point out to you that "the Writing Center is located in a building that is not accessible to persons with mobility impairments. If you need the services of the Writing Center, please call 610-861-1392." If you have any questions about this, please don't hesitate to ask me.

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This syllabus is currently as accurate as I can make it. I don't anticipate there being any changes, but I will let you know as far in advance as I can if that should become necessary.

Meeting number	Date	In-Class	Background Reading
1	Mon., Aug. 30	organizational meeting	
2	Wed., Sept. 1	finding and evaluating sources	<i>Writing Papers</i> chapter 1
3	Fri., Sept. 3	discuss life extension	<i>Liberation Biology</i> chapter 1
	Mon., Sept. 6	No Class (Labor Day)	
4	Wed., Sept. 8	discuss medical advances	<i>Liberation Biology</i> chapter 2
5	Fri., Sept. 10	discuss stem cells	<i>Liberation Biology</i> chapter 3
6	Mon., Sept. 13	discuss human cloning	<i>Liberation Biology</i> chapter 4
7	Wed., Sept. 15	discuss designer babies	<i>Liberation Biology</i> chapter 5
8	Fri., Sept. 17	discuss modification of nature	<i>Liberation Biology</i> chapter 6
9	Mon., Sept. 20	discuss psychopharmacology	<i>Liberation Biology</i> chapter 7
10	Wed., Sept. 22	discuss possible topics	
11	Fri., Sept. 24	discuss structure of literature reviews	Karieva et al. (2007) <i>Science</i> <b>316</b> :1866–1869 Sikela (2006) <i>PLoS Genetics</i> <b>2</b> (5):646–655
12	Mon., Sept. 27	resumés & curriculum vitae	<i>Writing Papers</i> pp. 243–252
13	Wed., Sept. 29	writing for the general public	TBA
14	Fri., Oct. 1	writing and documenting reviews	<i>Writing Papers</i> chapters 5 & 6
15	Mon., Oct. 4	discuss oral presentations	<i>Writing Papers</i> pp. 215–226
16	Wed., Oct. 6	develop rubric for oral presentations [article summary duel]	
17	Fri., Oct. 8	discuss drafting and revising	<i>Writing Papers</i> chapter 7
	Mon., Oct. 11	No Class (Fall Break)	
18	Wed., Oct. 13	oral presentations	
19	Fri., Oct. 15	oral presentations	
20	Mon., Oct. 18	review draft 1 of the review paper	
21	Wed., Oct. 20	oral presentations	
22	Fri., Oct. 22	oral presentations	
23	Mon., Oct. 25	review draft 2 of the review paper	
24	Wed., Oct. 27	oral presentations	
25	Fri., Oct. 29	oral presentations	
26	Mon., Nov. 1	review draft 3 of the review paper	

26	Mon., Nov. 1	oral presentation	
27	Wed., Nov. 3	oral presentations	
28	Fri., Nov. 5	discuss preparing final drafts abstracting exercise	<i>Writing Papers</i> chapter 8
29	Mon., Nov. 8	oral presentations <b>[review article due]</b>	
30	Wed., Nov. 10	oral presentations	
31	Fri., Nov. 12	oral presentations	
32	Mon., Nov. 15	review draft 1 of the research proposal	
33	Wed., Nov. 17	oral presentations	
34	Fri., Nov. 19	oral presentations	
35	Mon., Nov. 22	review draft 2 of the research proposal	
	Wed., Nov. 24	No Class (Thanksgiving Break)	
	Fri., Nov. 26	No Class (Thanksgiving Break)	
36	Mon., Nov. 29	review draft 3 of the research proposal	
37	Wed., Dec. 1	oral presentations	
38	Fri., Dec. 3	oral presentations	
39	Mon., Dec. 6	oral presentations	
40	Wed., Dec. 8	oral presentations	
	Fri., December 10 8:30 am	<b>FINAL EXAM</b> <b>PPHAC301</b>	

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## Papers

Each draft you hand in **must** clearly indicate what it is: Who wrote it, when you wrote it, which assignment it is, which draft it is. Be sure to also indicate the word count (see below). All drafts must be typed or word-processed, unless you speak to me first. (And yes, there's a good reason for that.)

In accordance with College policy, note that it is your responsibility to keep **all** materials (notes, jottings, index cards, intermediate drafts, etc.) for **all** assignments in this course until you receive a final grade. It is especially important that those of you writing with a word-processor be sure to save intermediate drafts *as separate documents!*

- There will be two major writing assignments in this course:

1. Review. We'll review (heh.) the structure of a scientific review article on Friday, September 24, but in short they synthesize a number of papers in a particular area into a coherent and fluid whole. The author may choose to extend the content beyond what is known by adding his or her own speculations, but this isn't a requirement.

I want to see a *minimum* of 10 primary sources used for this paper. (The notion of a peer-reviewed journal is **absolutely critical**: *be certain you understand what is meant by this term!*)

2. Research Proposal. Scientific research costs money, and oddly enough, people with money almost always need to be convinced to give some to you. Knowing how to write a solid, interesting, effective research proposal is a critical skill in modern science. We'll look at this kind of writing later in the semester.

- The two papers must be on separate topics, unless you have double the minimum number of references. I intend the two presentations to be keyed to these papers, so if you *do* use the same topic for both papers, you're going to have to choose a different topic for one of the talks.
- I expect a certain minimum length for each draft:

Draft	Minimum length
First	2000 words



Second 2400 words

Third 2700 words

Final 3000 words

And don't forget to schedule time with the staff at the Writing Center — getting a real outsider's perspective (by which I mean a non-scientist, or one who isn't very familiar with your subject) can be an invaluable asset to your writing.

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## Presentations

Each of you will give two oral presentations over the course of the semester. You will also be responsible for evaluating the presentations of your classmates. We'll discuss and develop criteria for evaluating these presentations late in September, but here are a few ground rules:

- Your presentation should take between 15 and 20 minutes, to allow time for questions
- You must provide me an abstract (200 words or more) **one week before** your presentation; I will post this abstract on the website.
- For at least one presentation you must use a software presentation program such as [gak!] PowerPoint.
- In each presentation you must present experimental results (from one of the papers, of course — I don't expect you to create them!) in reasonable detail.

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### Participation

Beyond your written and oral presentations, I also expect you all to participate in editing your classmates' written drafts and evaluating their presentations. You can see by the [point distribution](#) I use for grading that I take these aspects of the course very seriously.

When editing, keep in mind the purpose and audience of the piece. We'll discuss our goals and criteria further in class, but as is so often the case, the golden rule is a pretty good guide.

In addition, I expect you to give me evaluations of each talk. We'll discuss the format later in the semester.

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## Prof. Jones

If you ever have questions that you can't answer yourself using the textbooks, the Web, or even (gasp!) *thinking*, realize that there are a lot of additional resources available to you: your classmates and me. Don't be shy about asking for help. This is part of my job, and one which I don't shirk. Depending on what the problem is, the most reliable method to contact me is probably email (I sometimes don't realize I have voicemail for a day or two). My email address is cjones [at] moravian [dot] edu and my office (and lab) phone number is 610-861-1614.

If you need to speak with me sometime when I'm not on campus (a rare event!), call me at home any time between 9 am and 9 pm. Students often tell me they don't feel comfortable calling me at home because they think I mind. Consider the logic here: there's nothing that says I have to give you my home phone number, yet I have done so in class. So *why* would I give you that number if I didn't want you to use it? Note that "use" is not the same thing as "abuse": don't call me at 3 am the day before an assignment is due and expect much sympathy (or pleasant conversation)!

Here's a copy of [my current class schedule](#). My official office hours are from 9 am to 10 am Mondays and Fridays, and 11:30 to 12:30 Thursdays. If I'm not in my office (Room 310, Collier Hall of Science), try my lab (Room 233, Collier Hall of Science — between the elevator and the loading dock on the main floor). That said, feel free to get hold of me any time; if I can't spare the time to talk then, I'll tell you so, and we can set up an appointment at our mutual convenience.