

ECFS 190-00P: Freshman Seminar

Choose your own adventure (in science!)

Instructors and Contact Information:

Course Instructors:

Jason Davis	jdavis3@learnlink.emory.edu	112, Psychology	678-937-9391
Steven Girardot	sgirard@learnlink.emory.edu	257A, Grace Crum Rollins Building	404-712-8275
Piotr Habdas	phabdas@learnlink.emory.edu	307, Emerson	404-712-8669
Brenda Minesinger	bdevlin@learnlink.emory.edu	1071B, Rollins Research Center	404-727-4250
Christine Schaner	cschane@learnlink.emory.edu	2074, Rollins Research Center	404-727-4580

Supervising Faculty:

Dr. David Lynn
Professor, Biomolecular Chemistry
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Course Facilitators:

Lisa Perrone lperron@learnlink.emory.edu
Katrina Palmer kpalmer@learnlink.emory.edu

Office Hours:

By appointment only. Please email or call any of the instructors to schedule an appointment.

Teaching Assistant:

Brooke Rosenzweig barosen@learnlink.emory.edu

Class Schedule and Location:

Tuesday/Thursday 1:00 – 2:15 and additional field trips (noted on course schedule)

Room: Emerson 401

Learnlink Conference: ECFS 190-00P (*Choose Your Own Adventure*)

Required Texts:

There is no required textbook for the course. Selected readings and articles will be made available either through Learnlink or as handouts given out in class.

Course Description and Goals:

This seminar course is divided into five modules, led by a graduate student or postdoc, which cover five distinct areas of current research here at Emory. The overarching goal of this seminar is to foster an appreciation for how scientific questions are asked, analyzed, and answered. In particular, we'll focus on:

- How do we ask questions about what interests us? (What's your question?!)
- How do we ask the "correct" question? (Do we want to narrow our focus, or widen it?)
- How do we investigate the question (What are the "best" tools to use to determine the answer to this question? Chemistry? Physics? Biology? A mixture of the three, or something completely new?)
- How do we draw valid conclusions? (OK, now we have the data, but do they *mean* anything? And once we have the answer, where do we go next?)

In addition, this seminar is designed to foster a learning environment, which will encourage and promote open discussions in a relaxed atmosphere. We also want to encourage "thinking outside of the box." Remember: almost all of the "boring" discoveries in our text books started out by someone willing to give a new idea a try, and they revolutionized how we think about our world today. We may not start a revolution with this class, but who knows...

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Grading:

Grading for the course will be based on a earning a maximum of 1000 points, broken down as follows:

Modules 1-5	500 points	100 points for each module. Individual module grades will be assigned by the instructor leading that particular module. At the beginning of each module, the instructor will go over the grading of that module.
Course Project	300 points	There will be two main components to your project: a written paper and an oral presentation. Each will count half of the final project grade. Throughout the semester, assignments will be made to help your progress in completing the project. These assignments will not be graded; however, if they are turned in late, there will be a 15-point deduction (per day it is late) from your final project grade. More details on the project are included in this syllabus and will be discussed throughout the semester.
Discussion Questions	120 points	Discussion questions will be assigned throughout each module and will be graded on a scale of 0-6 points. Questions must be posted to the Learnlink Conference by 12:00 PM the day they are due , and you must bring a hard copy of your questions to class . Late questions will automatically receive a grade of 0 points.
Mini Project	50 points	During the first two days of the course, you will work in small groups, choose a scientific “adventure,” and do a short, 5-minute presentation to the class. More details on this will be discussed on the first day.
Class Participation	30 points	Each module is worth 6 points toward your total participation grade. Individual module participation grades will be assigned by the instructor leading that particular module.
Total	1000 points	

Note: The Emory University Honor Code applies to all work submitted in this course.

Attendance Policy:

This is a discussion-based course, and as a result your active participation is essential to its success. Attendance at class meetings is therefore required. One “freebie” absence is allowed, but each unexcused absence beyond this will result in a 10-point deduction from your final point total. If you do have a legitimate absence, make sure that you have proper documentation and inform the instructor promptly.

Learnlink Conference:

Throughout the semester, we will be using Learnlink extensively- for discussions, assignments, and course administrative details. You will be automatically subscribed to the conference, and it is your responsibility to check it daily.

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Class Schedule

Date		Instructor(s)	Topic	Notes/Assignments
Thurs	Jan 15	All	Course Introduction	Prepare Mini-Proposals
Tues	Jan 20	All	Mini-Proposal Presentations	
Thurs	Jan 22	Piotr Habdas	Module 1: What do peanut butter, silly putty, sand, and shaving cream have in common?	
Tues	Jan 27	Piotr	Module 1	
Thurs	Jan 29	Piotr	Module 1	
Tues	Feb 3	Piotr	Module 1	
Thurs	Feb 5	Brenda Minesinger	Module 2: How can fungus help in our understanding of cancer development?	Initial Proposal Topics Due
Tues	Feb 10	Brenda	Module 2	
Thurs	Feb 12	Brenda	Module 2	
Tues	Feb 17	Brenda	Module 2	
Thurs	Feb 19	All	Proposal Work Day	Final Proposal Topics and Research Hypothesis Statement Due
Tues	Feb 24	Christine Schaner	Module 3: How can worm stem cells help to heal human diseases?	
Thurs	Feb 26	Christine	Module 3	
Tues	Mar 2	Christine	Module 3	Last day to make changes to your proposal topic
Thurs	Mar 4	Christine	Module 3	
Mar 9 – 12		No class- Spring Break—have fun !!!		
Tues	Mar 16	All	Proposal Work Day	Proposal Outlines Due
Thurs	Mar 18	Jason Davis	Module 4: How do monkeys deal with stress?	
Tues	Mar 23	Jason	Module 4	
Thurs	Mar 25	Jason	Module 4	
Tues	Mar 30	Jason	Module 4	
Thurs	Apr 1	All	Proposal Work Day	Proposal Rough Drafts Due
Tues	Apr 6	Steven Girardot	Module 5: How does air pollution affect pulmonary health?	
Thurs	Apr 8	Steven	Module 5	
Tues	Apr 13	Steven	Module 5	
Thurs	Apr 15	Steven	Module 5	
Tues	Apr 20	All	Proposal Work Day	
Thurs	Apr 22	All	Course Wrap-Up OR Make-up day if inclement weather	Final Written Proposals Due
Monday, May 3 4:30 – 7:30 PM		Final Exam Period- Oral Presentations of Proposals		

To Be Scheduled: Additional lab days/field trips may also be scheduled.

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Final Project Guidelines

Goal: Throughout the course you will learn how to choose and answer scientific questions. At the end of the course, we want to give you a chance to apply what you have learned by choosing a scientific question that interests you and telling us how you would go about answering it.

Format: You will tell us about your question in two ways, a five to seven page written proposal due the last day of class, and a five-minute oral presentation during the scheduled final exam period.

Written Report

In a clear, concise, and original proposal, describe a research topic that interests you. Your proposal should reflect your own thinking and work and demonstrate your understanding of research principles necessary to pursue your interests. Present your plan with a clear hypothesis to be addressed by the research. Your proposal should also include a detailed analysis of how you think the hypothesis may best be studied. Also, be certain to cover why you think this overall question is of interest, both to yourself and to the world in general. Type single-spaced using 12-point Times New Roman font with 1" margins on all sides. The following sections should be included (included in parenthesis are general page length guidelines to help you):

- I. **Introduction** – The introduction should include any background related to your project and your reason for picking the topic (1-2 pages).
- II. **Question and Hypothesis** – A brief paragraph should outline the specific question you will be asking about your topic and what your hypothesis is to the outcome of the question.
- III. **Experimental Design** – A clear and concise explanation of the experiments you propose to do to answer your question, including the model system you intend to use and all the relevant controls. This should be the bulk of your paper (2-4 pages).
- IV. **Conclusions** – A brief summary of what you hope to learn from your experiments and any possible problems you might encounter.
- V. **References & Citations** – References (including websites) should be written in APA style. You should cite references within the text of your proposal and provide a reference list at the end of your paper. Both your within-text references and reference list should be written in APA convention unless you have a valid reason for using another convention. (This needs to be cleared first with the instructors). If you are not familiar with APA style, you may wish to visit their website at: <http://www.apastyle.org/>.

At least two references should be scientific journals or books. Only reputable websites should be used (i.e., those from government agencies or academic institutions; if you have a question about the appropriateness of a website, please see one of the instructors). References and figures will count against the page limit.

Oral Presentation

A five-minute PowerPoint presentation outlining the specific question you asked, what your motivation behind choosing this question was, and how you propose to answer the question. A two-minute question and answer period will follow each presentation. Presentations will be during the final exam period, **Monday, May 3, 2004 from 4:30-7:30pm** (room TBA). Your presentation should include:

- A title slide with your name, date, and title of presentation
- An overview/background slide

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- Experimental Detail slides (2-3 slides), including research hypothesis, experimental methods/procedures, data collection/analysis
- Expected or Anticipated Conclusions slide (and how this will support your hypothesis)
- Summary Slide

It is recommended to keep the number of slides between 6-8, as five minutes goes by very quickly! Keep in mind, your slides don't have to have EVERYTHING you want to cover- just the main points, figures, etc. that you will elaborate on during the talk. Finally, if you use figures or data from another resource that are not your original work, you should reference that on the slide (usually in small font towards the bottom of the slide).

Below is the grading scheme that will be used to evaluate your presentations. You will also evaluate each other's presentations, and 10% of your final presentation grade will come from the average of your peer evaluations. The additional 90% will be the average of each of the five instructor scores.

	Criterion	Maximum Points	Points Awarded	Comments
Content	<ul style="list-style-type: none"> • Provided sufficient background • Research Hypothesis clearly stated • Proposed Experimental Methods Explained • Data Collection & Analysis Explained • Knowledge of subject matter sufficient • Key vocabulary and terms explained sufficiently • Creativity of proposal • Overall feasibility of proposal 	75		
Structure/Organization	<ul style="list-style-type: none"> • Title page slide • Audience informed of key ideas to be discussed (overview slide) • Layout of slides was good (enough detail but not too crowded and full of text, appropriate size font, clear graphics) • Order of slides made sense • Closure- Conclusion/Summary of main points was sufficient 	30		
Presentation Skills	<ul style="list-style-type: none"> • Well-rehearsed presentation • If needed, notes prepared but used sparingly • Faced audience when speaking • Engaged audience appropriately (Provided "hook") • Was enthusiastic about work • Transition between slides was sufficient • Speaking quality (clear voice, good eye contact) • Good poise 	30		
Effective Use of Time	<ul style="list-style-type: none"> • Finished in a timely manner without rushing 	(-1 point per minute over 5 minutes)		
Handling of Questions	<ul style="list-style-type: none"> • Answered questions effectively • Provided sufficient explanation • Pointed out additional resources that could be used to answer questions 	15		
TOTAL		150		

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Deadlines: To help you through the process of designing this proposal, specific deadlines have been set-up along the way. These assignments are due at the beginning of the class period on which they are due.

Feb. 5	Initial Topics Due
Feb. 19	Final Topics and Hypothesis Statements Due
Mar. 2	Last day to make changes to your topic <i>(Note: All topics must be approved by the instructors of the course)</i>
Mar. 16	Outlines Due
Apr. 1	Rough Drafts due
Apr. 22	Final Written Proposals Due
May 3	(Final Exam Period) Oral Presentations

Grading: Credit will be given for handing in all parts on the indicated deadlines, but only the final proposal and presentation will be graded for content. It is to your advantage to hand these in on time, as they will be returned with helpful feedback from the instructors. Late submissions will result in a 15-point deduction from your final project grade. Your final project grade will be determined as:

Final Written Paper:	150 points
<u>Final Oral Presentation:</u>	<u>150 points</u>
Total:	300 points

Each student will be paired with an instructor, with whom they can meet with throughout the various steps of the final project. You must meet with your assigned instructor at least once, but all of the instructors are available outside of class to help you with any step. Please feel free to contact us with any questions.