

BCH4905 Science for Life Research Course

Fall 2020

<http://elearning.ufl.edu>

Open to all students

Classes will be held on Zoom
Thursday, 8th period, 3:00 pm to 3:50 pm
1 credit
Course Director: Dr. Mary Jo Koroly SFL.Koroly@cpet.ufl.edu

Science for Life Research Course Overview

This course is intended for students who are

- interested in gaining insight into how foundational science and engineering concepts are used in discoveries in the life sciences;
- interested in learning about cutting-edge research at UF; and
- interested in exploring the possibility of a research experience.

This weekly research seminar course will give students insight and appreciation of how fundamental science and engineering concepts are used in emerging research and discoveries, especially in the life sciences. Students will be introduced to the kinds of opportunities available in faculty bench, field and computer laboratories in departments, colleges, centers and institutes on all parts of campus. During most sessions, three professors from different UF colleges will speak on current topics in interdisciplinary science and engineering fields; the primary – but not exclusive emphasis -- will be on the biological and health sciences. The faculty members will present brief summaries of their backgrounds, laboratory philosophies, and research interests; their presentations are designed to give students a deeper awareness and understanding of the types of research ongoing at UF (and globally), and to inspire/encourage student interest in exploring the many opportunities to do research available to students at this world-class research university.

Students majoring in science, technology, engineering and mathematics (STEM fields) will find this course to be engaging and valuable. However, non-STEM majors with a strong background in high school science and a passion for research will also benefit from the multi-disciplinary research and guidance offered by the presenters in this course. All students will have the opportunity to enhance their scientific literacy, active listening, and critical thinking skills.

Instructors

The course director is **Mary Jo Koroly, Ph.D.**, Associate Professor of Biochemistry and Molecular Biology, College of Medicine, and Director of the Center for Precollegiate Education and Training, Academic Affairs; her email is SFL.Koroly@cpet.ufl.edu. Dr. Koroly will be available via Zoom after each class, but please feel welcome to contact her if you wish to arrange another time to meet.

The Teaching Assistant is Ms. Breanna Nastav, a recent UF graduate with a degree in Anthropology. Bree will also be available by Zoom for office hours. You may email her at bnastav@cpet.ufl.edu to set up an appointment.

Lecturers are ~30 active research faculty members and administrators from across campus who are pleased to introduce you to the interdisciplinary research they do and how and why they do it, and to encourage you to explore research opportunities throughout your college careers and beyond.

Course Structure

Students are expected to use Canvas to record attendance and to access the syllabus, announcements, weekly schedule of presenters, assignments, the required pre- and post-course surveys, and recordings of each presentation.

Students are expected to **attend** each class and to **prepare** for each class by conducting a web search to learn about each speaker's area of expertise. During class, students will use Canvas to submit **4 key words or phrases** to specifically describe one speaker's **research** that will demonstrate preparation and record attendance. After each class, students will use Canvas **to submit a well-thought question** about each of two of the research presentations. During the semester, each student will **interview** one UF faculty researcher to learn more about his/her research, and **prepare a report** about the interview that will be due on Friday, November 20. Thus, the grading for this course will be based on:

- 1) class attendance and preparation;
- 2) thoughtful questions that show understanding and reflection on the research presented;
- 3) research **faculty** member interview and report; and
- 4) thoughtful completion of pre- and post- course surveys.

Note: Joining a research lab is NOT a requirement for the Science for Life Research Course, but the presentations and assignments are designed to provide you with encouragement, skills, opportunities, confidence, and resources to make informed decisions if you choose to seek mentors and undergraduate research experiences.

Student Responsibilities and Grading

There are four (4) components of the course that will determine your grade.

- 1. Attendance and Preparation (40 points):** Since the major goal of this course is to learn about different types of research from the researchers themselves, students are expected to attend class, to be punctual, and to remain in the zoom classroom until the class is over (3:00 pm through 3:50 pm). To record attendance, students will be required to submit key words/phrases (described below) on canvas at an announced time during class. Students will have **3 minutes** to complete this brief assignment to ensure your attendance and preparation. There are 11 classes; one unexcused absence will be allowed and all students will get credit for the first class on 9/3. Other absences from the synchronized zoom class will lead to deductions in points (4 points/day) on the class grade. If absent due to serious illness, death in the family, or university-excused absence, it is the student's responsibility to inform Dr. Koroly as soon as possible.

To gain some familiarity with the general research area and vocabulary of each speaker, and thus help you to understand the varied research presented, it is critical that you search online for a description of the research of each scheduled speaker prior to class. Choose **four (4) key words/phrases** that you believe **best describe each speaker's specific work**. At some time-limited point during class, you will be asked to record your words/phrases for a specified speaker on Canvas (can be found under **Quizzes**). You may use memory aids, but the words/phrases must be your own (honor code!). You will earn four (4) points/day for attending class and submitting four (4) accurate, research-related descriptors at the designated time for the designated speaker during each of 10 class days. You may submit outside of the designated time **only** in the case of an excused absence.

- 2. Thoughtful Questions submitted after each class (up to 30 points):** To hone your active listening skills and to encourage you to reflect and think more deeply and critically about the material presented, you will submit two **well-thought questions**, one from each of two speakers after each class. The two questions will be submitted on Canvas (can be found under Assignments) within 25 hours after class (due Friday at 5 PM). Each thoughtful question about the research will earn 1.5 points and a question that simply asks for additional information relevant to the presentation will earn 1 point. Note: up to 3 points can be earned for each class.

A “**thoughtful**” question is one that

- a. shows understanding of and reflection on the research topic and its potential applications;
- b. contributes an original perspective;
- c. uses content from the lecture and your additional research to seek further relevant information.
- d. relates the research presentation to foundational knowledge and/or skills from your current studies.

For example: “What are you going to do next” is not an appropriate question, but “given the findings [specify] you just described, would your next step be to [specify]?” is the kind of question that is “thoughtful” and would earn full points!

Please note: your questions will most likely not be answered.... Their purpose is to help you improve your active listening skills and enhance your ability to build on existing knowledge and critically think about and integrate new material.

Please note: Since the time for each speaker is limited to 15 minutes, there is little time for questions during class. We will use the “Chat” function and answer as many questions as possible at the end of class. However, most of the speakers are willing to answer your emails, as their time and other obligations permit.

3. **Faculty Researcher Interview and Report (20 points):** Each student will write a short report (~3 pages), due on Friday, November 20 at 5 PM. This report will be based on a **one-on-one** interview you conduct, **in person or via zoom**, with a **UF professor** in any research area of interest to you. The researcher you choose to interview can be a presenter during this course **OR** any faculty member doing exciting science, engineering or health-related research at UF. Since the UF Center for Undergraduate Research lists hundreds of professors who mentor undergraduates in an online data base (see <http://cur.aa.ufl.edu/>) and only ~32 speak in this course, it is anticipated that most students will interview professors other than those presenting in this course.

NOTE: To be successful in this assignment, you should **start searching for a faculty member to schedule an interview within the first two weeks of class**—UF research faculty are very busy, and it often requires patience and perseverance to find a researcher to commit time to this interview, but the experience is well worth the effort for the vast majority of students!

Students must arrange to meet the professor of their choice, read at least one of their published journal articles, ask questions about their work in a zoom interview, tour their worksite (if possible), and report on the interview experience.

Content of the Report: Each report must contain

- a. Biographical information on the professor (where born, where educated, current title); how did the professor become interested in science?
- b. A description of the research site (location, numbers of undergraduate and graduate students currently in the professor’s laboratory, types of equipment, etc.). If at all possible, try to visit the research site..... I am aware that this may not be possible due to COVID-19.
- c. Several paragraphs on the question(s) the lab is trying to answer, why this question(s) is important, and what major experimental approaches are used

in the research. Please use both your interview and information from a paper published by your interviewee to respond.

- d. A paragraph that describes at least one research project that potentially could be available for undergraduates.
- e. Names and affiliations of major collaborators of the professor from outside of UF.
- f. Three recent publications from the professor's laboratory, with full citation including authors, title, year, journal (or book), volume, and page numbers. This is the bibliography for the report.

Format of the Report: The report should be no less than 2.5 full pages nor longer than 3 pages, single-spaced, with one inch margins and 12 point font. The bibliography should follow the text of the report as an additional page. The student's name and UFID should be on the top right corner of the report; and the interviewed researcher, department, college and email contact should be on the top left corner. The report should be saved with a filename that includes the student's last name and initial, e.g., SmithA_Report would be the filename for Adam Smith's report. Reports submitted with non-standard filenames will not be scored. As is the case for applications for awards and grants submitted by any professional, all formatting instructions must be followed precisely or points will be deducted.

Instructions for Submitting the Report: Reports must be submitted electronically by uploading a file to Canvas (can be found under Assignments) on or before 5:00 PM on Friday, November 20. No other form of submission will be accepted. Reports submitted past the deadline will have 4 points deducted for each 12 hours past the deadline.

Grading of Report: Reports will be graded on the clarity and completeness of each content component, as described above. This assignment is to help you develop/improve the skills, confidence and persistence needed to actively seek and obtain research experiences. It will also help you to identify and use resources, including student research organizations, UF informational websites, journal articles, etc. Perhaps you may even find a research opportunity for yourself!

4. **Thoughtful completion of pre- and post- surveys (10 points):** Surveys and directions for submitting them will be posted on Canvas (can be found under Assignments) near the beginning and at the end of the course. This assignment will ask you to give a short profile of your background, and to offer your expectations of this course (2 points). At the end, you will be asked to reflect on the usefulness of this course as it pertains to your interest in or ability to pursue undergraduate research, and to give feedback to help improve the content/format of the course for future semesters. Since the final survey is worth 8 points, thoughtful answers are expected.

There are 100 total points available, with the grade cutoffs as shown in the table at right. These grades are “guaranteed”, i.e., 92% or above will always be an “A”.

No exams will be given.

Special Needs - Students with documented special needs should notify the instructor (Dr. Koroly) as soon as possible so that necessary arrangements can be made.

Academic Integrity - All work in the class must be your own. Copying from any source (e.g., classmates, past students, published sources, Internet) without appropriate citations for any assignment is plagiarism. This is a serious offense and can result in a grade of 'E' for the course as well as disciplinary action from the university. NOTE: students may NOT copy information from a professor’s website to put into their reports. All reports must be written in the student’s own words

COVID-19 Online Course Privacy Guidelines and Information - Each of our class meetings will be audio visually recorded for students to review or watch in the event of an absence. Students who have their camera engaged or use a profile image are consenting to be visually recorded. If you do not consent to recording of your camera or profile image during class time, be sure you keep your camera off and do not use a profile image. Students who un-mute during class and speak to participate are agreeing to have their voices recorded. If you do not wish to be audio-recorded during class time, be sure to keep the mute feature engaged and communicate this directly in the chat function of the meeting. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Grade	Percentage cutoff
A	92%
A ⁻	90-91%
B ⁺	86-89%
B	82-85%
B ⁻	80-81%
C ⁺	76-79%
C	72-75%
C ⁻	70-71%
D	60%
E	59% or less

Let’s all work together to have a superb semester!