BI 475/499: Capstone Seminar in Biology – FA 2022

Birmingham-Southern College

**Course Syllabus**

**Instructor: Megan Gibbons**

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**SSC 245**

**Phone: 205-767-4701 (text is fine)**

**Class Meeting Time:** T, 12:30-3:20, SSC 238

**Office Hours:** Appointments: [https://mgibbons.youcanbook.me](https://mgibbons.youcanbook.me/)

**Course Description:** BI 475/499 is the second unit of the senior capstone experience in Biology at Birmingham-Southern College. This course should be taken either after (preferably) or concurrent (under extreme circumstances) with a research-intensive course or experience. BI 475/499 will use your research experience as a foundation for in-depth exploration of the scientific literature; application of the fundamental concepts of biology to interpret, analyze, and summarize biological data; communication of scientific findings to diverse audiences; and articulation of the importance of scientific research to other disciplines and to society more broadly. Also as a part of this course, you will reflect on your own growth as a scientist and consider how what you have learned as a biology major at BSC will contribute to your future as a professional and member of society.

**Course Goals:** By the end of this course, students should be able to:

* apply the process of science
* demonstrate critical thinking and quantitative reasoning
* communicate and collaborate with other scientists
* articulate the relationship between science and society
* demonstrate knowledge of the core concepts of biology

To achieve these goals, as a part of this course, you will

1. Present and lead a discussion focused on a research article chosen by the Biology faculty,
2. Actively participate in class discussions of other research papers,
3. Develop and present a seminar that provides an overview of your capstone research project,
4. Research and reflect on the importance of scientific research to society,
5. Reflect on your own growth as a scientist throughout your college experience, and
6. Take a concept inventory exam on the central concepts of biology.

**Course Policies:**

1. **Course Work and Evaluation:**

**Component Points**

1. **Journal Club**

Three citations 10

Journal Club Presentation 100

Journal Club Worksheets (4@20 pts each) 80

1. **Science and Society\***

Outline/Draft 30

Final one-pager 80

Presentation 40

1. **Capstone Seminar**

Slide Deck Draft 20

In-class Practice Presentation 50

Senior Conference Abstract 15

Senior Conference Presentation 100

1. **Reflection on Growth**

Resume Rough Draft 20

Resume Revised Draft 20

Resume FINAL Draft 50

Personalized assignments 1-3 65

Reflections on Professional Growth Paper 60

Senior Exit Survey 20

1. **Concept Inventory Exam** 100

1. **Attendance, Attitude, and Participation**

Attendance (12@5pts ea) 60

Attitude and Participation 40

**Total 980**

\* tentative scoring for this section.

**A. Journal Club:**

Each student will choose three potential articles for a journal club presentation, based on their own academic interests (in biology). The professor and student will decide together which article is best suited for Journal club. Before each journal club the class will read the article, complete the journal club worksheet, and develop questions for the upcoming journal club. Although some class time may be dedicated to preparation of journal club presentations, students should spend significant out of class time preparing as well. During the journal club, the presenters will have 45 minutes to present the paper and facilitate an exploration and critical review of the study. Presenters will be evaluated by both the instructor and by the students.

Following each journal club presentation, the class will discuss how the research is relevant to the presenters’ area of planned career specialty, or relevancy to the senior capstone research experience.

**B. Science and Society**

To explore the relationship between science and society, students will be provided with a list of commonly misunderstood topics. Each student will pick one of these topics; research it, using articles from the scientific and popular press; then write up a one-page policy recommendation on this topic. Each student will also share their findings in a 5 minute (approximately) PowerPoint presentation to the class.

**C. Senior Capstone Seminar**

Each student will make a formal, digital (e.g. PowerPoint), oral presentation of his/her capstone research project to the rest of the class, and then to the broader BSC community during the Biology Senior Conference at the end of the term. The student will also submit a full abstract of their presented research. The class presentation will be evaluated by a combination of instructor and peers. Following the class presentation, both students and the instructor will offer real-time feedback on the presentation so that presenters can improve their talk for presentation at senior conference. The final senior conference presentation will be evaluated by just the instructor.

**Draft slide deck**: The PowerPoint presentation must be uploaded to Moodle by the due date listed on the class schedule. Your instructor will provide feedback on the content and design of the proposed presentation prior to your class presentation. Your grade from the instructor will be based in part on adjustments to your slides based on that feedback.

**Abstract:** An abstract of the senior capstone presentation (including information from ALL sections of a traditional research paper) will be submitted to Moodle and disseminated to students and faculty in the biology department, so that individuals can determine which presentations they would like to attend during Senior Conference.

**Oral Presentations—In-class practice and Senior Conference**: The goal of the presentation is to explain the proposed research at a level that is understandable to a broad audience including your classmates and your instructor, not just specialists in a given sub-discipline of biology. Design it as if you were presenting to chemistry or math majors. Tips on for being successful with this assignment are posted on Moodle. The presentation should be approximately 12 minutes long, followed by 3 minutes of discussion and questions.

**D. Reflection and Preparing for Career**

Clearly there’s a lot more to a successful career and a fulfilling life than what you’ve learned in the classroom. Issues of work/life balance, navigating the workplace, and managing your finances are just a few of many complex issues that you will confront as you join the workforce. Issues normally considered “personal” often impact your “professional” life. These are just as, if not more, influential on your success than your science knowledge and skills. We will take time this semester to discuss some of these topics, and via a paper, you will reflect on what you learn about yourself and the challenges and opportunities that you will face.

Biology seniors in the past have asked for help with their resumes, so this will be one of our projects for the semester. You will learn about and build a chronological resume.

You will have a series of personalized assignments, which will help you think more critically about your future careers.

You will take time to reflect on and write about your professional growth here at BSC. This is a valuable skill that will translate into better personal statements for graduate/professional school, better cover letters for job applications, and better interviews as you move forward in your career.

An exit survey will provide an avenue for you to reflect on your time at BSC.

**E. Concept Inventory Exam**

You will demonstrate your own learning as a BSC Biology major through a concept inventory that spans different aspects of biology.

**F. Attendance, Attitude, and Participation**

Successful completion of this course requires active in-class participation. Therefore, attendance in the classroom is required. You are expected to arrive on time and to stay for the duration. Unlike classes that meet more frequently, missing one class session is the equivalent of missing an entire week of the semester. Thus, *excused absences will only be granted for appropriate, well-documented circumstances such as medical or family emergencies.* Unexcused absences could result in deduction of 80 points (5 points per class meeting) from the Attendance, Attitude, and Participation portion of your grade in this course.

Numerous pedagogical studies show that students learn best when actively participating. Keep in mind that everyone brings a unique background to the course, and you have the opportunity to learn from these diverse backgrounds. The role of a course instructor is to guide learning as students navigate the numerous diverse, dense, and immensely interesting topics of biology. Therefore, successful completion of this course requires your active and respectful participation**.** Students are expected to come to every class prepared and participate in the activities of that class. The more involved you are in this course, the more you and your classmates will benefit. Students will be warned in person and in writing before permanent deductions are taken for problems related to attitude or participation.

**BSC Honor Code, Academic Honesty and the Use of Turnitin.com:** All students in this course are expected to maintain academic integrity and uphold the BSC Honor Code at all times. **Specifically, in this course, the following are considered violations of the Honor Code: collaborating on work assigned for individual completion; plagiarism (ignorance is no excuse!); turning in work that is not your own; and lying.** Any violation of the honor code will be reported to the Honor Council and will result in a zero on that related assignment. Penalties imposed by the Honor Council are frequently academic probation, suspension, or expulsion. In addition, instances of plagiarism on any aspect of your proposal or draft proposal may result in a failing grade on that assignment.

1. We will use Turnitin.com via Moodle as a tool to educate students about what plagiarism is and how to avoid it by citing sources correctly. You should become very familiar with the issue of plagiarism and intellectual honesty. You need to visit the “TurnItIn Research Resources” webpage for information on how plagiarism is defined (<http://www.plagiarism.org/>). This will help you become a better writer and will benefit you in this course, other courses, and when writing in your career.
2. **Late assignments:** Any assignment may be turned in late for partial credit (up until a few days before grades are due). Work is considered late if not turned in at the beginning of class, or, when an assignment is due. You will lose 10% of the total possible points for each 24 hour period any assignment is late. These days include Saturday and Sunday. The maximum amount of points taken off will be 50% of the point value of the assignment. Thus, you should *always* turn in a late assignment, no matter how late it may be. *An unexcused, undocumented class absence does not excuse work from late fees. An excused absence may warrant a deadline extension, at the discretion of the instructor.*
3. **Communication:** See office hours posted above. We will be using Moodle throughout the semester in numerous ways (e.g., posting of reading assignments or important announcements). Thus, it is important for you to begin using Moodle as soon as possible. In addition, email will be used to communicate important announcements, so you are expected to check your BSC email frequently.
4. **Cancellations & Time/Location Changes:** If class is cancelled or if there is a change in time or location of class for any reason, an email announcement will be sent and posted on Moodle and a sign posted on the classroom door as soon as possible. In the event that class is cancelled, you will also be expected to complete assignments due for the cancelled class.
5. **Cell Phones**: It should go without saying, but in consideration of all class participants, cell phones are not permitted for calls or texting in the classroom. Please turn your phone off before class or lab begins.
6. **Learning Accommodations:** Under the directives and guidance of the Americans with Disabilities Act (ADA) and Rehabilitation Act of 1973, we are committed to providing appropriate accommodations to meet the learning needs of disabled students. If you believe that you qualify for learning accommodations based official documentation, please contact me and appropriate learning accommodations in accordance with the recommendations can be arranged. It is critical that you contact me *within the first week* of the course so that I can make the appropriate arrangements. If you believe that you have a learning disability, but have not self-identified please contact the BSC Counseling and Health Services by calling x4717.

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| Date | Topic | Reading/Assignments due |
| Aug 24 | Course Overview  Charrette – student wants/needs for class  Journal Club (JC) assignments  Students begin work on paper selection |  |
| Aug 31 | Instructor-led Journal Club  decide on final JC paper.  Senior conference dates  Resume Workshop I: What employers want | Read/study the JC paper for class discussion  Due: JC Worksheet  Due: 3 possible papers for your JC presentation  Resume-Writing workshop readings |
| Sep 7 | Student-led Journal Club 1 & 2  Resume Workshop II: Peer Review | Due: Journal Club Worksheets  Due: bring to class hardcopies of draft resumes; show instructor for credit  Due: post draft resumes on Moodle, too. |
| Sep 14 | Student-led Journal Club 3  Discussion I: Work/life balance | Due: Journal Club Worksheets  Due: Revised Resumes due on Moodle |
| Sep 21 | Science Communication Randy Olsen TEDmed talk [here](https://www.youtube.com/watch?v=ERB7ITvabA4).  (Guest speaker Hannah Wolfson) | Watch the Randy Olson TEDmed talk on Moodle |
| Sep 28 | Science and Society assignment description (golden goose awards)  Senior Conference Presentation  Discussion: Elements of a good presentation | Review “Organizing a 12 min talk” slides on Moodle |
| Oct 5 | FALL BREAK NO CLASS |  |
| Oct 12 | Discussion II: The Money Issue Personalized assignment 1 discussion | Due: Senior Conference Draft Slide Deck |
| Oct 19 | Discussion III: What do I do NOW? (right after college)  Concept Inventory Exam | Due: Science and Society Paper (draft)  Due: Personalized assignment I |
| Oct 26 | Senior Conference Class Presentation | Due: Concept Inventory Exam  Due: FINAL RESUME |
| Nov 2 | Senior Conference Class Presentation | Due: Personalized assignment II |
| Nov 9 | Senior Conference Class Presentation | Due: Science & Society Paper (Final) |
| Nov 16 | Science and Society Presentations | Due: Upload Science and Society Presentation slides |
| Nov 23 | THANKSGIVING BREAK NO CLASS |  |
| Nov 30 | NO CLASS | Due: Personalized assignment III |
| Dec 1 | Reading Day: Senior Conference Community Presentations | Upload final powerpoints,  Due (midnight): Reflection on Professional Growth |
| Dec 7 | Individual Meetings with Gibbons (before this) | Due 9 am: Reflection on Professional Growth; confirmation of Senior Exit Survey |