

## BSC3931 Junior Seminar for Biology Majors

### Tentative Schedule – Fall 2016 (M: 100 – 205); Ref #219098

Date	Activity	Due date
Aug 29	<b>Introduction.</b> Course and sequence documents and outlines, 4-term plan. Discuss possible venues for research and internships. Review materials on Blackboard site. <b>Assignment 1: Read</b> the <i>Great Scientific Method</i> - due 9/12.	
Sept 5	<b>Holiday</b>	
Sept 12	<b>Scientific method lesson 1.</b> Review and practice generating observations, alternative vs. null hypotheses for the observations. Discuss <i>The Great Scientific Method</i> article. Assign journal article 1 and discuss critical reading techniques. <b>Assignment 2:</b> Read and complete study sheet for article 1; due 9/19	<b>A-1</b>
Sept 19	<b>Scientific method lesson 2 – experimental design.</b> Practice with simple projects and selecting controls, procedures and so on. Review article 1 (hypotheses, study design, paper format) using study sheet.	<b>A-2</b>
Sept 26	<b>Plagiarism: What is it and how to avoid it.</b> <b>Assignment 3:</b> Take the <i>Plagiarism Quiz</i> (IRSC Home Page...Libraries...Forms and Surveys...Plagiarism Quiz); due 10/3. Review <i>PowerPoint Pointers</i> . <b>Assignment 4: Selling yourself – CVs and cover letters.</b> On your own, review PowerPoint & Ch 10 about preparing a cover letter and CV for an internship position in McMillan (2012, pp. 218-227). See examples in Blackboard. First draft due 10/10.	
Oct 3	<b>Library field trip.</b> Presentation on appropriate scientific resources, using data bases, and distinctions between primary and secondary resources and their uses. For the following session, complete in-class <b>Assignment 5</b> requiring use of internet and library resources; due 10/19	<b>A-3</b>
Oct 10	<b>Writing a scientific research paper 1 – Literature review.</b> Examine samples of summary articles, finding original sources, etc. Go over formats in <i>Writing Papers in the Biological Sciences</i> . <b>Assignment 6:</b> Select a topic from <i>Science News</i> and acquire 3 or more of the primary sources, take notes on the sources, prepare a citation list using CSE style (McMillan 2012), outline a brief introduction and <b>present</b> a background (intro) section using PowerPoint. Work in pairs. Due 10/17, 10/24 & 10/31.	<b>A-4</b>
Oct 17	<b>Presentations</b> for Assignment 6	<b>A-5; A-6</b>
Oct 24	<b>Presentations</b> for Assignment 6	<b>A-6</b>
Oct 31	<b>Presentations</b> for Assignment 6  <b>Writing scientific research papers 2 – Methods and materials.</b> Discuss proper M&M style/format. <b>Assignment 7:</b> Given a laboratory protocol, write a brief M&M section for inclusion in a research paper, due 11/7.	<b>A-6</b>
Nov 7	<b>Writing scientific research papers 3 – Data presentation.</b> Discuss concerns regarding Assignment 7. Examine several papers and note the types of data presentation employed; examine legends and keys. Explore data and data analysis options in Excel ( <b>meet in V-443B</b> ). <b>Assignment 8:</b> Given various sets of data, produce appropriate figures/tables with proper labelling, legends and titles. Due 11/21.	<b>A-7</b>
Nov 14	Continue working on Assignment 8; due 11/21 <b>Assignment 9:</b> Final draft of cover letter and CV due 11/28.	
Nov 21	Visiting Scholar	<b>A-8</b>

Nov 28	<b>Writing scientific research papers 4 – Results and discussion.</b> Differentiate between the two. Discuss objectivity and reporting. The care with which interpretations must be made will be noted. <b>Assignment 10:</b> Given the data and results section of a paper, create an <i>outline</i> for the discussion section, in class.	<b>A-9; A-10 (in class)</b>
Dec 5	Last day of class – go over expectations for next semester regarding selecting research topics and writing proposals; What’s Next? presentation.	

**PROFESSOR:** Dr. Bill Tyler

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**WEBSITE:** Blackboard website

**Office Hours:** Check Blackboard website for office hours, or make an appointment.

### Grading:

Final course grade will be tabulated as a percentage out of a total of 120 points.

Attendance, promptness and participation will count 10% [up to 10 points]. Attendance and promptness will count 5% of this [up to 5 points], and participation will count 5% [up to 5 points]. Students must attend all meetings, and show up on time for full credit. Participation will include actively working on in-class projects, asking questions, and contributing to discussions.

Assignments: Assignments 4 & 9 (cover letter and CV) will be worth a total of 40 points (20 points each for draft and final versions). The remaining 8 Assignments are worth up to 10 points each (80 points total); for each assignment, 5 points is for timely completion, 5 points will be based on quality.

Late assignments: 10% of assignment will be deducted per day for late assignments.

A - 90% - 100%

D - 60% - 69%

B - 80% - 89%

F - below 60%

C - 70% - 79%

W = withdraw by published college deadline (Wednesday, **Nov. 7, 2012**)

I = an incomplete may be given to passing students in EXTREME cases

### Support materials:

McMillan, V.E., Writing Papers in the Biological Sciences, Bedford/St. Martins, New York, 2012, 5<sup>th</sup> [ISBN-13: 978-0-312-64971-5] – Required of all Biology majors; 4<sup>th</sup> edition (2006) is also acceptable.

Jenkins, S.H., How Science Works: Evaluating Evidence in Biology and Medicine, Oxford Press, USA, 2004 [ISBN 13 978 01495158953] – Optional.

Gillen, C.M. Reading Primary Literature: A Practical Guide to Evaluating Research Articles in Biology, Benjamin Cummings, 2007 [ISBN 13 978 0805345995] – Optional.

### Course Objectives

- Students will review principals of the scientific method and the practice of science.
- Students will examine scientific literature and analyze it as to adherence to the “rules of science.”
- Students will practice applying the principals of the scientific method and of science writing.

### Student Learning Outcomes: Upon completion of BSC3931, Junior Seminar I, students will be able to:

- demonstrate knowledge of scientific method through application of sound research principles, and
- apply sound research principles to the evaluation of scientific literature related to the Life Sciences industry and profession.

**Cheating:** Cheating (including plagiarism) of ANY kind will not be tolerated by this department. Any student caught cheating will receive an immediate zero on the exam/assignment and potentially an “F” in the course (no withdrawal allowed).

**Students with Disabilities:** In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at the Student Disability Services (SDS) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. IRSC offers many disability resources at on-campus labs. Students who wish to request an accommodation for a documented disability should contact the SDS at 772-462-7782 or 772-462-7808.

**Non-Discrimination and Non-Harassment Policy:** Indian River State College (College) is committed to maintaining a fair and respectful employment and educational environment. In accordance with federal, state and local equal opportunity laws, Indian River State College prohibits discrimination on the basis of race, color, national origin, ethnicity, sex, religion, age, disability, sexual orientation, marital status, veteran status, or genetic information.

**Statement to Students:** If you are experiencing difficulty in your course, your first obligation is to work directly with your instructor to resolve the issue. If you are unable to settle your concerns with the assistance of your instructor, you can contact the Department Chair (Dr. Jennifer Capers, 462-7556, [jcapers@irsc.edu](mailto:jcapers@irsc.edu)), who will assist you or advise you about contacting the Academic Dean (Dr. Paul Horton, 462-7503,) or Vice President (Dr. Marta Cronin, Vice President of Academic Affairs 462-7215).

**Student Support:** IRSC’s **River Support** system is available for any difficulties during the semester, including personal, financial and academic problems. It may be accessed at <https://esweb.irsc.edu/Mariner/student/ssp/faq.jsp> or from the IRSC home page.