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## Local and Global Perspectives in Biology

BSC-1000

Florida International University

Dept. of Biological Sciences

(SPRING 2020)

**Instructor:** Dr. Melissa McCartney  
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**Office:**  
**Office Hours:** TBD

*\*\*If you can't make it to these hours please make an appointment via email*

**Course Description:** BSC 1000 is a 3-credit course intended to introduce you to the big ideas of Biology through reading primary scientific literature. You will approach biology in a fundamentally different way by connecting biological ideas across multiple disciplines, scales, and historical events, all while highlighting the relationship between biology and a global society.

This class will center on five themes (food, waste, connect, senses, and information) and how these themes are mediated by the major core concepts of Biology (evolution, structure and function, information flow, transformation of energy and matter, and systems). Additionally, you will explore current and future applications of biological research within the larger context of critical thinking, analysis, and experimental design. **There will be a strong emphasis on learning to find, read, evaluate, and understand primary scientific literature.**

Biological research impacts life across the globe, whether it be in the form of environmental research, research on disease, research on food sustainability, or research on animal migration. None of this research takes place in a vacuum, as biological phenomenon in one corner of the globe ultimately influences a biological phenomenon elsewhere. Additionally, understanding how to read and evaluate primary scientific literature is equivalent to understanding the global language of scientists.

**This is a Global Learning Foundations Course that counts toward the GL graduation**

**Requirement**, therefore it will enhance your Global Awareness, Perspective, and Engagement, so that you will have knowledge that scientific discoveries arise globally, affect human affairs globally, and should be shared globally. This will be achieved through (1) accentuating the multi-dimensional value of significant discoveries in Biology, and (2) evaluating the significance of biological issues to human affairs historically and geographically. For example, you will be asked to evaluate what was the socio-economic characteristic of the societies in which the discoveries happened; if these discoveries can be directly translated to other geographic regions (why or why not); are there any contemporary significant achievements either in another scientific discipline or in art, literature, filmmaking, etc.

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As a Global Learning Course, this course will enrich the learning process with information regarding the impact of Biology on social issues globally. This interdisciplinary global aspect of the course will be covered through:

1. lectures
2. reading of primary scientific literature and related news articles
3. active learning activities
4. students' assignments

**Course Objectives.** The objective of the course is to teach you how to:

1. Find, read, evaluate, and understand primary scientific literature
2. Connect the 5 core concepts of Biology to current biological research
3. Scientifically evaluate situations in which biology plays a role (pollution, climate change, waste management, treatment of disease, etc.)
4. Use scientific theories to design future biological hypotheses
5. Assess and critically evaluate claims made in popular media for their scientific merit
6. Generate a description of how the field of Biology relates to non-STEM fields

### Global Learning Course Outcomes

1. **Global Awareness.** You will be able to describe the interrelationship between biological research and policy developed from the results of this research, locally and around the world.

The assessment for Global Awareness will be in the form of clicker/homework questions related to the primary literature you are reading on a topic. I will ask you to elaborate on class discussions with specific prompts on how each paper relates to global awareness and to provide specific examples. You will also reflect on “what comes next,” by proposing ideas on how to increase global awareness/cooperation on the biological research topics covered in the primary scientific literature.

2. **Global Perspective.** Students will be able to translate the science contained within primary scientific literature into a research proposal that includes a description of the diverse, interdisciplinary research team and stakeholders who will be informed about the results.

The assessment for Global Perspective will be in the form of exam short answer questions. These exams will emulate a grant proposal for future biological research. Building on what you have discussed in class, you will be given a topic in biological research and asked to design the next experiment to move this research forward. Similar to a grant proposal, you will need to justify how/why your **research idea** has global impact (with specifics) as well as how the outcomes of your **proposed experiments** will have a global impact. You will also design a research team that should be interdisciplinary and international. Finally, you will have to explain how you would share the results of your research with government officials as a way to influence policy on biological issues.

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3. **Global Engagement.** Students will demonstrate a willingness to remain current in an aspect of biological research that impacts their daily life.

The assessment for Global Engagement will be in the form of (1) writing a short paper on selected biological topic with a global perspective and (2) giving an oral presentation on a selected biological topic with a global perspective.

FIU's Excellence in Global Learning Graduation Medallion is awarded to students who complete at least four global learning courses, participate in a variety of global co-curricular activities, and complete a capstone consisting of one of the following: a substantial original research project and presentation on a global topic; extensive foreign language study; long-term study abroad; or, a globally-focused internship. The Peace Corps Prep certification is conferred upon students who complete at least four global learning courses, extensive language study, and a global problem-solving project. For more information, visit [goglobal.fiu.edu](http://goglobal.fiu.edu).

### **Course Requirements:**

**Prerequisites.** None.

**Required Text.** None.

**i-clicker.** You will be required to have an i-clicker. You can either buy it or rent it from the FIU Bookstore. After obtaining the i-clicker you will need to register your device <http://www1.iclicker.com/register-clicker/> using your Panther ID #.

**Participation and Attendance:** This will be an interactive class consisting of active learning. For each class you attend you will receive 5 points. Attendance will be taken through participation in clicker questions, group work, and exit slip. You are expected to attend class regularly and come to class on time. If you must be late, please enter the room in a way that does not disturb the lecture.

**Homework:** You will have 20 homework assignments throughout the semester. These will be short assignments focused on learning how to find, read, evaluate, and understand primary scientific literature.

**Group Projects:** You will have one group project that will replicate a grant review panel. Groups will present current research on a topic of their choice and present their ideas for future experiments. Groups representing will be tasked with evaluating the proposed experiments and determining if they deserve funding.

**Exams:** You will have three in class exams that will be report-based. You will be allowed to use the internet to answer the questions but you must provide primary literature citations. If you do not attend class on exam days you will receive a zero and will not be allowed to finish at home.

**Final:** There will be a final report due at the end of the semester on advancing global biological research on a topic students have chosen.

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**Co-curricular Activity Reflection.** Twice over the course of the semester, you must attend “The Tuesday Times Roundtable (TTR)”, FIU’s weekly series of moderated conversations on The New York Times articles from the multiple viewpoints of students, faculty, and staff. All sessions are absolutely free, and include lunch: <https://goglobal.fiu.edu/ttr/>

You will then write a brief, 1-page reflection on how this discussion relates to the themes discussed in class. Your reflection should consider how new perspectives introduced through course readings, lectures and/or class discussions can help resolve the problem or issue discussed at the event. It should also consider how the event itself provides other perspectives on the problem.

Course Requirements	Number of Items	Points Each	Total Points Available
Participation and Attendance	28	10	280
Homework	20	10	200
Group Project: Grant Panels	1	100	100
Exams (3)	3	100	300
Final (1)	1	100	100
The Tuesday Times Roundtable reflections (2)	2	30	60
<b>Total</b>			<b>900</b>

Letter	Range (%)	Letter	Range (%)	Letter	Range (%)
A	95 or above	B	83 - 86	C	70 - 76
A-	90 - 94	B-	80 - 82	D	60 - 69
B+	87 - 89	C+	77 - 79	F	59 or less

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**Course Calendar for Fall 2019**

Week	Date	Biology goals	Primary lit goals	Blooms level	GL goals	Group project
1	8-26	Thinking science	What is primary literature?	Knowledge	What is GL?	Choose a topic
	8-28					
2	9-4	Thinking biology	How do you read it?	Comprehension	How/why does GL apply to biology?	
3	9-9					
	9-11					
4	9-16	EXAM 1				
	9-18	EXAM 1				
5	9-23	Nat. History of Food	How do you find primary literature?	Application	Global Awareness	Collect sources
	9-25					
6	9-30	Nat. history of waste				
	10-2					
7	10-7					
	10-9					
FALL BREAK	10-14	EXAM 2				
	10-16	EXAM 2				
8	10-21	Nat. history of conflict	How do you cite primary literature?	Application	Global Perspective	What would you do next?
	10-23					
9	10-28	EXAM 2				
	10-30	EXAM 2				
10	11-4	Nat. history of sense	How do you develop a review of several primary literature articles?	Analysis	Global Engagement	Preparing for a grant panel
	11-6					
11	11-13	Nat. history of information		Synthesis		
12	11-18					
	11-20					
13	11-25	EXAM 3				
	11-27	EXAM 3				
14	11-29	Group presentations				
	12-4	Group presentations				
FINAL EXAM TBA						

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## Policies

**Rules, Policies, and Academic Misconduct:** A major objective of higher education is to develop self-reliance, critical thinking, problem solving, and creative thinking. Therefore, it is expected that you will be responsible for the completion of their own academic work. If appropriate, the use of literature, notes, aids, or assistance from other primary or secondary sources should be clearly identified and disclosed. In addition, students are expected to use all resources, including books, journals, and computers only in legal and authorized ways. They should also refrain from falsification of records, attend class as required, and participate in the educational process without disrupting the orderly processes and functions of the University. Students are expected to abide by the CODE OF ACADEMIC INTEGRITY (<http://integrity.fiu.edu/misconducts.html>).

It is the responsibility of all students, faculty, and administration to conduct all academic and scholarly activities in truth, which means the honest pursuit, generation, dissemination and application of knowledge. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of Florida International University.

As a student of this University, I will be honest in my academic endeavor.  
I will not represent someone else's work as my own.  
I will not cheat, nor will I aid in another's cheating.

All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions.

**Disability Notice:** There is a Disability Resource Center available to you should you need it. It is your responsibility to contact them to see if you need their services. You must follow their procedures as to properly notify the instructor.

**Diversity Statement:** The Department of Biological Sciences fosters an environment of inclusivity and respect for diversity and multiculturalism. The Department educates students to embrace diversity and understand the root causes of discrimination, as well as social, ethnic, sexual, disability and gender-based exclusion.

**Religious Holy Days:** The University's policy on religious holy days as stated in the University Catalog and Student Handbook will be followed in this class. Any student may request to be excused from class to observe a religious holy day of his or her faith.

**Discrepancies:** In the event that there is a discrepancy with your grades – whether it was not posted with the rest of the class or if there are questions that you would like to review with your instructor – it is your responsibility to communicate with your instructor in a timely manner in order for changes to be made or office hours to be arranged.

**Electronic Devices:** I discourage the use of any electronic devices including phones, laptops, and tablets to class. Please, if you must bring these devices to class, set all electronic devices, including cell phones,

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to silent mode so that they cannot be heard. Additionally, if you must take a call or text, please quietly leave the classroom to complete the discussion. Please, do not engage in texting inside the classroom.

**Assessments/Exams:** It is your responsibility to make sure your computer meets the minimum hardware requirements.

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or a tablet. If you need further assistance please contact FIU Online Support Services.

Please arrive on time to all exams; we will not let anyone start an exam after the first exam has been timed in. There will be no make-up or replacement exams in this course. If you miss an exam, you may use the grade of your final exam to replace the missed exam grade. Please check the exam schedule within the first week of class for any conflicts with religious observances. If you must or have to miss the final exam, a valid and well-documented excuse must be presented.

**Academic grievance:** I aim to provide academic instruction in a way that is non-discriminatory and fair to all students. Nevertheless, if you believe that you have not been dealt with fairly or that the instruction has been inadequate, procedures exist for handling grievances. First, speak with the instructor. I could be unaware that a problem exists and your grievance might help me make the class better for you and your fellow students. Speaking with the instructor is likely to yield a satisfactory explanation, or resolve the problem by making adjustments to accommodate special needs. If the problem is not or cannot be resolved with the instructor, speak with the department head or chairperson. Finally, if the problem still cannot be resolved, speak with the Dean of Students.

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