NS 216 - Life on Earth

Course Syllabus, Spring 2024 Thursdays 09:40 – 10:30 (FASS 1008-1010) Fridays 09:40 – 11:30 (FASS 1008-1010)

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Course Description:

This course is designed for all students interested in the macromolecular aspects of life on Earth. First half of the course will cover the evolutionary processes and the history of life. Second half of the course will cover various physiological aspects of life. A basic level understanding of biology, molecular biology and chemistry is a highly suggested prerequisite.

Textbook:

Life: The Science of Biology (11th ed.) / Sadava, Hillis, Heller, Hacker 2016,(I also use the 12th edition however I can hardly see any change in the 12th edition from the previous one).

Evaluation:

One midterm exam (30%), One final exam (40%), Attendance, participation, & homeworks (30%)

How to do well in NS216 class (i.e. I want to get an A in the class)

Advice from previous undergrad students...

- 1. Come to class, come to class on time, pay attention in class instead of texting on your cell phone or shopping on your computer
- 2. **Come to office hours if you need help,** but first you must identify the areas you need help with, this is why you need to start assignments early so you can identify where you need the help
- 3. **Read the textbook for the assigned sections** on the class schedule handed out on the first day of class **before** you come to that class
- 4. Spend 9 hours a week on reading the textbook or studying the class notes and learn the class material on your own, **lectures are not enough to thoroughly understand the class material**
- 5. **This is not high school** where if you are smart then you do not need to study and you will do fine on the exam, **everyone needs to study to do well in this course**
- 6. Study with your friends before the exam, try to find motivated students like yourself to study with, if you can teach the class concepts to another student then you really know the class material
- 7. If you are not happy with your exam score or overall grade then work habits needs to change long-term and likely the habits that need to change are in relation to one of the points mentioned above, your grade will not magically improve on its own if no adjustments are made

Week	Lec 1 Lec 2	Reading	
1	15-Feb	Ch 1, Ch 25,	The History of Life on Earth, From one cell to many
	15 1 CD	Ch 26	to many
-	16-Feb	Ch 31, Ch 32	Blood and Guts, Pumps and Pipes I
2	22-Feb	Ch 51, Ch 47, Ch 48	The Challenge of Regulation, Support, and Movement
	23-Feb	Ch 42, Ch 43	The Challenge of Reproduction
3	29-Feb	Ch 52	Introduction to Evolution, What Is It and What Is It Good For?
	1-Mar	Ch 53	The Four Forces of Evolution
4	7-Mar	Ch 54	Natural Selection, Sexual Selection
	8-Mar	Ch 55, Ch 56	The Origin of Species, Speciation
5	14-Mar	Ch 33, Ch 34,	Introduction to Energy and Matter, Why are plants green? From radiant to chemical energy
_	15-Mar	Ch 35	Coupling of energy and matter: generation of organic carbon
6	21-Mar	Ch 27, Ch 38	Why is water so important for plants?, Decoupling of energy and matter: oxidation of organic carbon
	22-Mar	Ch 57, Ch 58	Fossil fuels: ecosystem services and global warming
7	28-Mar	Ch 44, Ch 45	How natural selection shapes behaviors, Learning, Memory, and Aging
	29-Mar	Ch 52	Proximate vs. Ultimate Explanations For Behaviors
8 -	4-Apr	Study	Pre"Midterm Review
	5-Apr		MIDTERM
	18-Apr	Cl- 4C	Post "Midterm Review
9	19-Apr	Ch 46, Ch 40	Mechanisms of Behavior
10	25-Apr	Ch 56, Ch 28	Evolution of Social Behavior, Introduction to Living Together
-	26-Apr		Newt and Snake Arms Race
11	2-May	Ch 28, Ch 37	Co-evolution and Pollination I and II
	3-May	Ch 56, Ch 50	Keystone Species and the missing trees
12	9-May 3	Ch 41	Parasites and Ecology: Lyme Disease
13	10-May	Ch 26.4	Introduction to Climate Change, Climate Change, Ocean Acidification and Coral Reefs
		Ch 55	Ballast Water and Invasive Species
14	16-May	Ch 36	Potential Effects of Climate Change on Soil Biodiversity and Function, Sustainability and Sustainable Agriculture
	17-May	Ch 20	Can't We Just Evolve Our Way Out of This Mess?
15	FINALS WEEK -		FINAL EXAM

Course Policies

Academic Integrity Policy -- YOU MUST READ AND FOLLOW

Each student will be evaluated only for her/his own work. Students are encouraged to work and study together; however, what you put down on your problem sets, lab reports, and exam papers should be your own work in your own words. Be aware that you will not be helping your friends by allowing them to copy. Do not allow your friends to make use of your problem sets or, lab reports and exams, allowing them to copy will not help them in the long run. Such behavior, as all forms of cheating, is unfair and disrespectful to yourself, to all the students in the class, to your instructors and teaching assistants, and to the University. A student involved in cheating has misused the trust extended to him or her. If discovered, such behavior will have DISCIPLINARY consequences for all parties involved.

Violations of academic integrity will result in zero grades for that worksheet or exam, both for those who cheat and those who allow and help them cheat. In all such situations we will ask you to have a face-to-face meeting with the instructor. We have mutual trust and respect for each other as individuals while sharing a collaborative learning experience. This is very valuable for all of us, and having to lose this trust and respect would be very regrettable.

Question related to lectures: Since this is a simple basic biology course all lecture related and course related questions should be asked directly to the TAs. However, in the rare instance that a particularly important matter has to be discussed which cannot be solved by the TA then the student should email the instructor or take an appointment by email to meet for office hours.

Grading: If the first decimal place is 5 and larger, then the number will be rounded up to the next integer (e.g., $67.5 \rightarrow 68$). Failing to take **one** of the exams without a medical excuse will result in failing the course. The letter grade ranges are provided in the table below.

Letter Grade	Criteria for Earning Grade
A	100 – 90 %
A -	89 – 85 %
B +	84 – 80 %
В	79 – 75 %
B -	74 – 70 %
C +	69 – 65 %
С	64 - 60 %
C -	59 – 55 %
D+	54 - 50 %
F	Less than 49 %

NA Policy: If you miss one of the exams, you will automatically receive NA for the course. If you otherwise fail the course, you will receive NA

Cell/Mobile phone policy: Cellular phones that ring during lecture are extremely disruptive to a productive learning environment—distracting both the professor and the other students. Individuals that allow their phones to ring during class may be asked to leave. This also covers constant texting and vibrating phones. Please do not text during my class. I don't text with anyone during any part of the class and I ask you to also refrain for the 160 minutes of class, even during group work or discussions. Honestly, I find it insulting and rude. Any communication via an electronic device during an exam or quiz will be considered cheating. There is no problem if you would like to use them during the breaks in class. **However, if your phone becomes a**

distraction then I reserve the right to confiscate your phone and return it back at the end of the lecture.

Exams: Exams are closed-book and will be taken in-class (no longer than 50 minutes), and no outside sources of information are allowed, unless provided by the instructor. In the event that you take an exam at a time that differs from other students, no communication of any kind regarding the exam is permitted. Although all tests (including final) will be non-cumulative in details, you are expected to have a broader understanding of Life on Earth by the end of the semester. Make-up exams will be given only in extreme circumstances. Only notes from the Health Center and/or signed note from a medical doctor or President of the University may count as an excuse for missing an exam. Make-up exams will tend to be more difficult to discourage the behavior of missing the original exam time.

Disability Accommodations: If you need disability-related accommodations (extra time, etc.) for this course, please contact Miray Keskin Erdoğan at the Disable Students Support Unit Center of Individual and Academic Development (CIAD) address: Orhanlı, Tuzla, 34956, Istanbul, Turkey

e-mail: specialneeds@sabanciuniv.edu, miray.keskin@sabanciuniv.edu

telephone: + 90 216 483 9481

website: http://ciad.sabanciuniv.edu/en/disabled-students-services

Accommodations with an approved letter will be arranged on a case by case basis.

E-MAIL: Check for messages on SUcourse about the course frequently. E-mail is also the best way to make an appointment with the instructor. I will send e-mails to your Sabancı e-mail, be sure to check it.

Other important points:

- Attendance at all lectures and prompt arrival is expected.
- If you are involved in off-campus activities (e.g. dance, theater, sports, music) that asks you to leave town, please provide me with a list of your scheduled games or events at the START of the semester, as well as the phone number of the coach/supervisor, and I will make a reasonable effort to accommodate your needs.

Important Course Dates:

Midterm Exam (in class) – April 5th, 2024 **Final Exam** (finals week) – TBD

Student Learning Objectives:

By the end of this course you should be able to:

- **1.** To gain an appreciation for the diversity of life created via evolution. Understand the life around you and gain a deeper respect for nature and the ecosystems around you.
- **2.** Identify the evolutionary relationships between different life forms on Earth.
- **3.** Describe the physiological basis of life in different life forms.