

Biological Principles of Environmental Science – 11:375:201
Fall 2021 Tuesdays/Fridays 11am -12:20pm

Instructors: Kat Dawson

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**For prompt replies, please include 375:201 in the subject line

Class Meetings: Online via Canvas, T F 11:00 AM - 12:20 PM

Office/Zoom Hours: By appointment, please email Dr. Dawson to set up a time

Canvas course site: <https://rutgers.instructure.com/courses/138145>

Grading:

Exams (non-cumulative) – 3 x 15% (Two + Final)

Project reports– 6 x 10% (lowest grade dropped)

Post Lecture Quizzes– 5%

Readings from various sources provided to you via Canvas. **THERE IS NO TEXTBOOK**

Lectures – Due to the necessity to remain masked while speaking in a lecture hall and the large enrollment in this class, we will be conducting the lecture portion of this class over zoom. You may access the zoom links through canvas. Lectures will be recorded for later viewing. However, it is **highly recommended that you attend lectures synchronously if possible**. By attending the synchronous recording, you will be able to ask questions.

Post lecture quizzes – These are short quizzes on the material covered in that days lecture. Quizzes will provide you with perspective on the critical points of the lecture and provide examples of potential exam questions. These quizzes **will also only be available for 1 hour after lecture**.

In person projects – There will be 6 in person group activities over the course of the semester. You will work in small groups to collect and analyze samples, study contaminant transport in groundwater, and set-up semester long microbial metabolism observatories. These activities are designed to occur outside and will be rescheduled in the case of severely inclement weather. You will work in groups and then submit individual reports about your work. Reports will include evaluations of your team.

Your participation and attendance on these days is expected. In the case of illness, emergencies, and inclement weather are part of life.

Absence Reporting – You may report an absence using the University website <https://sims.rutgers.edu/ssra/>, which will automatically send an email to Dr. Dawson. You are still responsible for all course materials in the event of your absence, and it is advised that you reach out immediately for assistance in making up the activity.

Exams: Two non-cumulative exams will be given for material covered in the first two thirds of the semester. A final non-cumulative exam will be given during finals week and will cover the final third of the semester.

Students with a disability: Please contact Dr. Dawson immediately so that I may make any necessary arrangements to support a successful learning experience. This includes any accommodations you may need or concerns that you may have about conducting outdoor sampling or engaging in a hike at the Rutgers Ecological Preserve. To formally request accommodations, please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are available at <https://ods.rutgers.edu/>

Plagiarism and Academic Dishonesty: Plagiarism is taking credit for someone else's work whether deliberately or unintentionally. This includes but is not limited to turning in all or part of an essay written by someone other than yourself (a friend, an internet source, etc.) and claiming it as your own, and including information or ideas from research material without citing the source. **You will receive an automatic 0 for plagiarized work, and may be reported to the Office of Academic Integrity.** Rutgers deals with academic dishonesty in the Code of Student Conduct (<http://studentconduct.rutgers.edu/university-code-of-student-conduct>); penalties are stern, as is fitting for the seriousness of the offense. This can mean separation from the University *even for a first offense*.

UNIVERSITY STATEMENT on ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at:

<http://academicintegrity.rutgers.edu/academic-integrity-policy>

The principles of academic integrity require that a student:

- Properly acknowledge and cite all use of the ideas, results, or words of others.
- Properly acknowledge all contributors to a given piece of work.
- Make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- Obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- Treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- Uphold the canons of the ethical or professional code of the profession for which he or she is preparing
- The reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Adherence to these principles is necessary in order to ensure that

- Everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- All student work is fairly evaluated and no student has an inappropriate advantage over others.
- The academic and ethical development of all students is fostered.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

Student Wellness Services: (The RU Student Assembly urges inclusion in every syllabus.)

Counseling, ADAP & Psychiatric Services (CAPS) (848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / www.rhscaps.rutgers.edu/ CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA) (848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/ The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services (848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/> Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

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Tentative Class Schedule

Lecture	Date	Assignment Due	Topic	Reading
1	3 September 2021		Chemistry of Earth and Life	Vallee, Szostak, Revkin articles
2	7 September 2021		* Project 1 (in person group activity) Winogradsky Columns pt 1	Meet at Picnic table ENR
3	10 September 2021		The Three Domains of Life and Viruses	Brock ch 1-2
4	14 September 2021		Central Dogma, Genes, Genomes, Evolution, and Probing Potential	Brock ch 1-2
5	17 September 2021		Cellular Metabolic Processes, Aerobes vs Anaerobes, Photosynthesis	Mattaini ch 10.1, 10.4 and 12.1
6	21 September 2021	Project 1 report	* Project 2 (in person group outdoor activity) Ecological Preserve	Meet @ Livingston Eco Preserve Entrance
7	24 September 2021		Communities and Ecosystems, Terrestrial Biomes, Hydrosphere	Chiras ch 5-6
8	28 September 2021		Humans in a Microbial World and as a Microbial Environment	Wilkinson/Pommerville ch1
9	1 October 2021	EXAM	* EXAM I	
10	5 October 2021	Project 2 report	* Project 3 (in person outdoor group activity) Cook/Douglas soil sampling	Meet at lecture hall
11	8 October 2021		Biogeochemical Cycles – Interaction of Life and the Environment pt I	Kump ch 8: 149-173
12	12 October 2021		Biogeochemical Cycles – Interaction of Life and the Environment pt II	Schlesinger ch 7: 248-273
13	15 October 2021		Environmental Contaminants – Sources, Types, Impact on Biology	Fisher ch 9/Drever ch 6
14	19 October 2021	Project 3 report	* Project 4 (in person) Groundwater Contamination	Jones ch 9
15	22 October 2021		Environmental Contaminants – Remediation and Attenuation	Vaccari ch 16: 675-699
16	26 October 2021		Waste Water Treatment: Biological/Chemical Oxygen Demand	Sameer ch 1
17	29 October 2021		Municipal Waste Water Treatment: Primary, Secondary, Novel Design	PA DEP intro to wastewater
18	5 November 2021	Project 4 report	* Project 5 (in person outdoor activity) Raritan River/Wastewater	Meet at RU boat launch
19	8 November 2021		Municipal Waste Water Treatment: Public and Environmental Health	Brock ch 28
20	12 November 2021	EXAM	* EXAM II	
21	15 November 2021		Introduction to Environmental Toxicology	Chiras ch 19
22	19 November 2021	Project 5 report	Toxic Legacies: From DDT to PFAS and Pharmaceutical Waste	Silent Spring pt 1
23	23 November 2021		Thanksgiving Break – No Class	
24	26 November 2021			
25	30 November 2021		* Project 6 (in person group activity) Winogradsky Columns pt 2	Meet at lecture hall
26	3 December 2021		Ecological Consequences of Climate Change	
27	7 December 2021	Project 6 report	Evolving Environmental Biology Policy in a Complex World	
28	10 December 2021		Roles for Citizen/Academic/Government/Corporate Environmental Scientists	
29	14 December 2021		Reading Day – No class	
30	16-23 December 2021	EXAM	* Exam III – Date TBD in finals week	

*** These lectures will be in person. ALL OTHER LECTURES WILL BE REMOTE THROUGH CANVAS**

**** If necessary outdoor group activities will be rescheduled to the subsequent Tuesday to accommodate severely inclement weather, report due dates will also be adjusted where necessary.**