

Methods in Ecology & Evolution Spring 2024 – 1st Half - New Theme - Microplastics

Dr. Romi L. Burks, Professor of Biology, FJS 212

Tuesday/Thursday: 8:30-11:20 - FJS203

Burks Office Phone: 863-1280

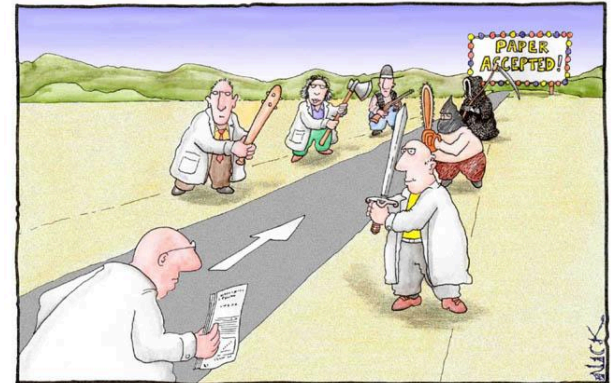
Cell: 512-869-8098

Office Hours: Tu/Th 2:30 - 3:30 pm; generally MW 10-11 am and also best by appointment

Website: www.profromi.com

Email: burksr@southwestern.edu

COURSE DESCRIPTION: Methods in Ecology and Evolution is an intermediate course in the Department of Biology. It is a foundational-building course that contains instructions on reading the primary literature in ecology and evolutionary biology, conducting literature searches, designing experiments, writing in scientific format, using quantitative methods, exercising critical thinking skills for data analysis, creating graphs and developing specific laboratory skills. Students that have taken a methods course in Psychology or Kinesiology can use those courses to substitute for the pre-requisite course needed to take upper-level ecology courses.



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

THEME: This will be a new themed course on microplastics — note that will involve some patience and flexibility as we test out some new field methods and laboratory analyses.

DATA ANALYTICS MINOR: This course fulfills one of the required courses for the Data Analytics Minor. Data Analytics is the use of quantitative data to describe the world. The theoretical foundation is based in mathematics and computer science; the practical applied meanings come from interpreting the data in the context from which it arose. However, data science cannot exist outside of its larger issues of ethics and fairness. The Data Analytics minor provides students with fundamental tools in statistics and computing, experience applying those tools in two departments in the social sciences and/or natural sciences, and consideration of broader societal implications raised by data science and its capabilities.

SYLLABUS PHILOSOPHY: Most of the information that you need for success occurs in this syllabus. Keep It handy similar to a car manual in the glove box. **Any changes in the syllabus---particularly deadlines --- may be posted on Moodle.**

WORKLOAD: Generally, something will end up being due **OFTEN** in this course. You should prepare to devote at least an hour outside of class for every hour in class. Probably more like 1.5 hours...or more. This equates to scheduling a minimum of 6-10 hours a week to devote to this course. It's intense, especially as a ½ semester (7 weeks) course. Students will acquire both writing and analytical skills in the classroom. This Methods Course also involves a significant writing component. Students are encouraged to consult with me, the Guide for Writing in Biology & the Writing Center on campus.

STUDENT LEARNING OBJECTIVES: By the end of the course, students should be:

1. Quite adept at finding appropriate peer reviewed literature;
2. Experienced in the concepts of experimental design, data collection and analysis;
3. More skilled at reading primary literature;
4. Cognizant of the important of revision and the constructive feedback of peers;
5. Knowledgeable about the methods of scientific writing;
6. Better equipped to conduct and analyze statistical analyses;
7. Capable of running a basic program in R;
8. Able to hold intriguing conversations about the 'peripherals' of being a scientist

COURSE WORKS IN CONCERT WITH BIOLOGY DPT STUDENT LEARNING OBJECTIVES:

1. Students will understand & apply knowledge & concepts about functioning of living systems;
2. Students will accurately and thoughtfully identify, evaluate and critique research and research literature on biological phenomena;
3. Students will clearly, accurately and in appropriate styles, communicate about biological phenomena and research orally, in writing and graphically;
4. Students will accurately, appropriately and safely perform physical techniques of biological investigation; and
5. Students will accurately and appropriately apply quantitative reasoning and methods to biological problems.

COURSE LOAD AND GRADING PRACTICE – WRITING ATTENTIVE:

- First, I make line edits. Providing extensive suggestions for revision and identifying areas of improvement. I do not correct everything, but instead try and point out repeatable errors. I consider it your responsibility to then apply the edits I make. If you do not know how to do this, then you must inquire.
- Second, I look at the content - are all the expected parts there? What's missing? What's in the wrong place?
- Third, I look for the depth and/or quality of the reasoning. Does the sentence make sense, connect to literature, etc...
- Fourth, I look at the Rubric dimensions and apply the dimensions as specified .I examine the rubric and then determine if the work associated with that element reflects an A, B, C or D. Repeat for each element and assign the relative points.
- Finally, I tally up the score and see if the total score reflects the quality of the work. In a few cases, I consider it too "picky" and then modify the above elements.

Each of the rubric elements represents a compilation of a lot of things. Thus, two students can receive exactly the same score on a rubric element --- or on an assignment --- for completely different reasons. When no one receives a "perfect" score on an assignment, then this likely occurred because no assignment submitted lacked grammatical errors. As far as what I "want", I desire care to detail, correctly described statements, attention to revision and literature support. I don't see these as a mystery or something not attainable.

At the end of an assignment, I tend to summarize or highlight areas on the rubric. I try to be as transparent as possible. I encourage students to read each other's work and even compare notes on grading if you wish. However, any unclear discrepancies in points assigned should be brought to my attention. Overall, your grade in this course comprises two components: effort and quality. I expect that you all will put forth great effort with varying degrees of quality that translated into a range of final grades.

ENGAGEMENT: I expect students in Methods to engage actively with the material. Seven weeks and the nature of the course material does not give much leeway for getting behind. Students will also come with different skill levels and exposure to statistics, which may make it more challenging for some than others. The key thing to realize early is that SCIENCE TAKES TIME AND THIS CLASS WILL TAKE A LOT OF TIME. Combined with Methods in Cell and Molecular Biology, students receive 4 hours of academic credit for 6 hours in class as occurs with a traditional upper-level biology lecture and lab. In some cases, you will have substantial exercises to complete outside of class time.

PARTICIPATION: Regular class participation is the default circumstance for students in upper level Biology courses. Class participation involves discussing primary literature, posing questions about class materials, following thru exercises and working well in groups.

- **Outstanding** = Particularly noteworthy class participation will grant you a 1% benefit of the doubt at final grade time. In other words, an 89% B+ would end up as a 90% A-.
- **Acceptable** = Regular class participation assures course standing (no change)
- **Below Average** = Less than frequent class participation/poor attendance (i.e. 2 unexcused absences) lowers your grade by ½ letter (i.e. B+ = B)

Unacceptable Number of unexcused absences (> 3) or extreme lack of participation will result in course failure. I will notify you of your status half way through the course (in case improvement is needed). If you are curious at any other time, just ask. Please note that 2 accounts of being excessively late (beyond 15 minute warm-up window) = 1 unexcused absence. Please be on time.

IMPORTANT NOTE: I LOVE methods. I love statistics. I love teaching students how to do science. Thus, sometimes, I can get a little overzealous. I have worked hard to design a course that I think will greatly benefit you in your future courses and hopefully your own research. Of course, there is a caveat. This is always a course in development – so, as things go along, PLEASE come and talk to me about how it is going and if we need to make any other considerations (although the syllabus schedule is pretty prescribed, THERE IS ALWAYS ROOM FOR CHANGE.

REQUIRED TEXTS:

1. *The Scientist's Guide to Writing* (Heard) - **Paperback:** 349 pages; **Publisher:** Princeton University Press 2nd edition (2022); **Language:** English; **ISBN-13:** 978-0691219189
2. *Getting Started with R* - **Paperback:** 240 pages; **Publisher:** Oxford University Press; 2 edition (March 26, 2017); **Language:** English; **ISBN-10:** 9780198787846 or **ISBN-13:** 978-0198787846 - **used as a reference text**

COURSE MANAGEMENT SYSTEM:

Moodle represents the learning management system used by Southwestern. This web-based, open source program will be instrumental to this class. You sign into Moodle with your regular su-ID and password either through the SU-Portal or at the website: lms.southwestern.edu. This interactive system will allow you to:

- Download files (primary literature, assignment instructions/rubrics, etc...)
- Keep track of your grades
- Submit assignment and get on-line feedback
- Keep a calendar and view each week and the upcoming activities and/or assignments

Submitting Assignments: Moodle/Google Drive: I cannot open ".pages" documents on Moodle. Please make sure to always make your documents open-able by MS Word or Adobe PDF on a PC platform. Save them with .doc or .docx extensions, ideally. I may ask you to submit/share some assignments as Google Docs so that I can easily comment on them but I prefer them as Word documents.

STUDENTS' BILL OF RIGHTS FOR METHODS:

Each student can expect access to course materials prior to class. Although we will focus on microplastics throughout the course, students can expect to improve their general writing & presentation skills. Each student can expect a classroom environment conducive to learning. If this is not the case, see me immediately. In addition, students can expect that I will be attentive to their needs and flexible if excused absences (illness, sports, etc.) occur. By using Moodle, students can expect Methods to be as "green" or "paperless" as possible.

PROFESSOR AND COURSE EXPECTATIONS FOR STUDENTS:

METHODS expects that you take a good amount of responsibility for your own learning as you will be developing your skills as a scientist. **I expect that students check their email routinely.** I expect the classroom environment to have a relaxed atmosphere where students can feel free to express opinions or ask questions. Students must respect other people's opinions even if they differ from theirs. I expect that students will take some time to reflect on what they are learning. I expect that, although the course focuses on microplastics, the skill gained can be applied to any set of biological research.

OTHER POLICIES:**ATTENDANCE:**

Students need to prepare for and attend each class. More importantly than just attendance, lack of preparation diminishes your capacity to engage fully in intellectual activity.

However, **I ENCOURAGE YOU TO ONLY ATTEND CLASS IF AND ONLY IF YOU FEEL GOOD. WHEN IN DOUBT REGARDING POTENTIAL ILLNESS, STAY HOME.**

- **Attendance itself is not directly part of your grade.** Your engagement and participation can be assessed in multiple other ways.
- If you develop any symptoms of COVID-19 (esp. fever, cough), call the SU Health Center at 512-863-1252 to schedule an appointment.
- If you need help getting medical care, contact RA or SUPD at 512-863-1944.
- Do your best to communicate with me or designate a peer to communicate updates if that is easier.
- Do not worry about missing class if necessary. I promise to work individually with everyone on a case-by-case basis.

SELF-CARE:

College life is great, but also stressful and demanding, especially now.. College life under the umbrella of covid is a new frontier. Keep in mind that **nothing is as important as you and your support system.** Take care of yourself first and then you can be there to help others.

Some Self-Care Basics
<ul style="list-style-type: none"> ● Prioritize ● Stick to a routine ● Don't skimp on the basics (eat, sleep, move) ● Stay connected ● Limit news consumption ● Be mindful of substance use ● Practice mindfulness and other relaxation techniques ● Cut yourself some slack ● Watch for signs of trouble in yourself ● Check in with friends and other supporters Reference: https://www.apa.org/monitor/2020/07/self-care

ATTENDANCE RELIGIOUS AND CULTURAL TRADITIONS:

Southwestern University recognizes that it has students from a variety of religious and cultural traditions that have special days of observance or celebration that may take students out of their regular activities on certain days during the school year.

1. *As far in advance as possible, the student is expected to notify the professor(s) or instructor(s) of the class(es) to be missed.*

2. The student is expected to learn what assignments or exams are due or will be assigned on those dates and negotiate with the professor(s) or instructor(s) alternate times for fulfilling those requirements.
3. Students should be prepared to fulfill the requirements prior to the class(es) to be missed.

IMPORTANT DATES:

Due to the rapid nature of the mini-courses, please note the early drop dates. '

First day of first half courses: **Mon., Aug. 26**

Last day to add first half courses online: **Wed., Aug. 28**

Last day to add first half course (via faculty consent): **Fri., Aug. 30**

Last day to drop first half courses online: **Thu., Sept. 5**

Last day to drop first half courses without record OR change to/from P/D/F (via faculty consent): **Wed., Sept. 11**

Last day to drop first half courses (via faculty consent): **Wed., Sept. 25**

Last day of first half courses: **Fri., Oct. 11**

ACCOMMODATIONS:

"Southwestern University will make reasonable accommodations for persons with documented disabilities. Students should contact the Center for Academic Success to determine their eligibility to receive accommodations."

Official accommodation notification should be communicated as soon as reasonably possible. Beyond this, we all need some version of accommodations to make our class space accessible, because we all learn in different ways. Please feel free to manage your classroom experience in the way best for you. Reasonable requests will always be carefully considered for feasibility and equity.

- ❑ Library and Academic Support services - [Academic Success website](#) and the "[Support During COVID-19](#)" section of that website.
- ❑ Technical / computer help support services - Students can receive technical support through the InfoDesk. They can call the support line (512.819.7333) or send an email to infodesk@southwestern.edu. Support is available M-F, 8-12 and 1-5.
- ❑ Counseling / health support services - See [Counseling Center's](#) website.

OPEN COMMUNICATION:

Students are expected to discuss questions and areas of concern with me.

FLUID DEADLINES:

Given the ever present pandemic world, I'm okay with some fluidity of deadlines that do not affect others. However, please note that if no deadlines exist, then everyone will procrastinate. Also, missing a deadline makes it more difficult for me to return feedback to you in a timely manner. If you anticipate not meeting a deadline for legitimate reasons, please ask for an extension **at least 12-hours in advance**. If you feel that you need more time to produce quality work, then extensions or revised deadlines can be implemented but **I encourage you to meet deadlines so that work does not pile up**. Late work submitted without notice will receive a reduction of 20%.

HONOR CODE:

You must complete all work independently unless otherwise noted by Dr. Burks. As all work will be electronic, you must type out the honor pledge IN FULL on all assignments.

I have acted with honesty and integrity in producing this work and am unaware of anyone who has not.

Please take responsibility for taking care of this; I will not chase you down if you forgot the pledge. **On electronic submissions, you must have it on your submission (the best practice is to place it in the Heading followed by your initials)**. If you are unclear on the concept of plagiarism or cannot sign the honor code in good faith, please see Dr. Burks. When in doubt, paraphrase and cite the [BIOLOGY CITATION GUIDE](#). Any perceived impropriety will be discussed with the student and appropriate action taken. **All citations in this course should use APA style.**

Please note that I am a BIG Honor Code fan - which means I will pursue any case per a non-judicial resolution to the need to refer it to the Honor Code Council. For serious infractions, I generally recommend failing the course.

THOUGHTS ON USE IN AI (in development):

In general, the vast majority of your writing effort in this course should be original. This class seeks to teach you how to write scientifically, not how to cut corners by having someone or something write for you. However, it would be naive to not acknowledge that there's a growing place for AI as a "research assistant." For each assignment, I will discuss the permitted use of AI (if any) and your signing of the Honor Code should reflect that understanding. In general, you can rely on these guidelines:

- You should always acknowledge what you used AI to do
- You should never "cut and paste" from AI with the exception of code for R
- You are 100% responsible for the integrity and accuracy of the content that you submit (in other words, if you used AI to find a citation and it's fake, that's on you).
- You should always work to paraphrase AI generated content into your own "voice."
- AI can be best used for brainstorming.
- AI can be used to create "proper" citations (i.e., APA) BUT again, you must acknowledge its use and are responsible for the specific content.

FOOD:

Not allowed in Room 203. Try to avoid bringing it to class at all. We will take short breaks between blocks.

FACEBOOK/TWITTER/INSTAGRAM:

I'm happy to be "A Friend" with SU students with the knowledge that I am a faculty member at Southwestern first. I will not ask students to be Friends because I do not want to exert inappropriate pressure. As a "friend" and professor, I have a vested interest in students and an obligation to the University to take any concerns that catch my attention seriously. I'm not in the habit of checking up on students but I cannot help but read updates when posted. So, if there were something posted in an update that spoke to a personal concern or threat to any other student, then I feel obligated to follow up on the post. In what I hope to be rare instances, my follow-up actions may take the form of a message from me or a call by me to appropriate University personnel better equipped to handle dramatic situations. I think it is important that you know this ahead of time. My Profile page serves as an all-inclusive insight into my life for my friends, family and some students. I do not post anything there that I am not willing to publicly share (this is good advice). If you are happy with this "condition," then great. If it makes you at all uncomfortable, then feel free to Defriend - will not take it personally at all.

You can also follow me on Twitter @ProfRomi

CELL PHONES:

Please turn all cell phones to SILENT/VIBRATE during class. You may use cell phones to keep track of the time but should not be actively texting or e-mailing in class. In the case that you need to be in contact with another party (family emergency, etc...), then quietly and unobtrusively leave the room to respond to a call if received. Violation of such a policy will reduce your effort evaluation in class.

CLASS OR LAPTOP COMPUTERS:

We will be in a computer lab but you can also use your own computer. If such activity enriches your material retention, feel free to take notes during class on a laptop computer. At all times, your focus should be on the class activity and not on alternative activities (i.e. Facebook, e-mail, etc...). Violation of such a policy will reduce your effort evaluation in class.

ABOUT ME THIS SEMESTER:

Mental State: I spent the last year on sabbatical primarily thinking about chocolate and secondarily about snails. Last semester my additional efforts went towards preparing for a 28-day study abroad trip to Belize which we completed in June of 2024. I have returned to being the Biology Department Chair, having six new research students and participating in two faculty searches this Fall. Consequently, it feels "full up" and it may take me a little bit to get in the groove. I appreciate your patience.

My schedule: Beyond Methods, I teach FYS Chocolate from 1-2:15 Tu/Th which concludes at the end of October. Wednesday morning will be my dedicated writing time. I tend to

spend Fridays with my lab students. I set office hours for later on Tuesdays and likely Monday mornings. If I am not in my office (see note below), I'm not far away - just email, text or call.

Travel: This semester, I have one travel commitment that will minimally impact class. I will be in Seattle at Northwest Chocolate from Thursday, October 3rd to Monday, October 7th.

Puppies: I do have two "puppies" (they will be two at Thanksgiving) Cavachons, Chai & Latte. I teach FYS at 1 pm so I will be going home right after Methods to let them out. Thus, after class is not the best time to talk to me but I'm happy to find mutually convenient times.

Things I try as modeling good teaching:

1. **Show Up to Class** - I'll be there even though I'm not a morning person.
2. **Be Yourself** - No problem there - what you see is what you get. I'm very straight-forward and no nonsense.
3. **Put Yourself in Students' Shoes** - I get this. Shorter attention spans. A lot more to juggle. Pandemic fatigue. Will try to make the best of everything together.
4. **Organize Course Intuitively** - Ok. See below. When in doubt, ask.
5. **Add Visual Appeal** - Methods should be visual.
6. **Explain Your Expectations** - Noted. They're usually pretty high. Often do this verbally and also recap in Moodle Announcements and detail on Rubrics. Will have Q&A time.
7. **Scaffold Learning** - Keeping this in mind as I thought of ways to build assignments and also connect between projects.
8. **Provide examples** - Try to do this as much as possible.
9. **Make Your Class An Inviting, Pleasant Place to Be** - Open to suggestions here.
10. **Commit to Continuous Improvement** - Absolutely - I consider all teaching an experiment with "tweaks" often needed.

Consider what you can do to try and be a good student...put in Moodle Box.

After reading the syllabus, please mark important dates on calendars and COMPLETE THE SYLLABUS CHECK by typing in "I have read the syllabus and understand the expectations." By entering this, I know that we start on the same page. Also feel free to share your thoughts about what you can do to be successful in Methods.



ELEMENTS	#	% Grade	Points	Scaffolding	Level of difficulty	Grading Scale
Engagement	4*	25	100	Can revise ABTs until acceptable	Low	A = 92.5% of 400 A- = 89.5% of 400
Sigma Xi Grant	3	18.75	75	Pitch -> Proposal -> Final Grant	Moderate	B+ = 87.5% of 400 B = 82.5% of 400 B- = 79.5% of 400
Primary Lit	4	25	100	Peer Review of Draft Extended Abstract	Low to Moderate	C+ = 77.5% of 400 C = 72.5% of 400 C- = 69.5% of 400
R Literacy	3	18.75	75	R1 + R2 = Prepare for R Competency Demo	Moderate to High	D+ = 67.5% of 400 D = below that
Graphics	2	12.5	50	Draft -> Final	Moderate	F = 60% or less

*3 actually, but one counts for 50 points instead of 25.

1. ENGAGEMENT - Low Stakes - Do a good job and get the points - 100 points (25%)

A. ABTs of *The Scientist's Guide to Writing* - 50 pts (double value of others)

You will write 25 ABTs of your choice (5 per week during Weeks 2 - 6) based on what you read in Stephen Heard's book subtitled "how to write more easily and effectively throughout your scientific career." You may not use any outside assistance from AI for this element.

- And, but, therefore: A storytelling template that provides context, conflict, and resolution in a narrative. Randy Olsen introduced the ABT format in his book.
- ABTs lie at the core of storytelling, logic, reason, argument and the scientific method. Writing in this format results in the shrinking of a narrative thread down to a single sentence using three connector words: and, but, therefore.
- We will record ABTs:
https://docs.google.com/document/d/1OXIl2f3-GC_cr2WkVss6KGhEvkeKLTpbOiRgT3qEi3E/edit?usp=sharing

B. Self-Reflection - 25 points

Near the end of the course, students will be asked how they contributed positively to the class dynamic, how they worked to further the objectives of the class studying microplastics (i.e., [joint Google Doc](#)) and their general work ethic.

C. Statistical Knowledge Assessments - 12.5 + 12.5 points = 25 points

Near the end of the course, students will complete a "Google Quiz" (25 points that will be divided in half) and then receive an additional 12.5 points for completing the BioSQuaRE assessment for the Department of Biology.

2. Small Grant Sigma-Xi Style (3 assignments; 25 points each) = 75 pts = 18.75%

Individual students will write a Sigma Xi grant based on a research question associated with microplastics and this will include a pitch presentation, a draft proposal/outline of the idea and a final version of the grant. We will speed write grants during class time.

You can ask AI to help you brainstorm ideas, but not to write the grant for you.

3. Primary Literature (4 assignments; 25 points each) = 100 pts = 25%

Part of the learning objectives of Methods include increasing student confidence in locating appropriate primary literature as well as interpreting the main results. Students will illustrate their ability to do this through engaging with the primary literature focused on microplastics.

- A. Annotated Bibliography and ABT (5 papers)
- B. Abstract Analysis & Introduction Scaffolding
 - a. Write an abstract of an experimental paper as if you were the author
 - b. Compare and contrast efforts in content and style
 - c. Evaluate success of introduction scaffolding
- C. Experimental Design
- D. Final Extended Abstract

4. R Literacy (3 assignments; 25 points each) = 75 pts = 18.75%

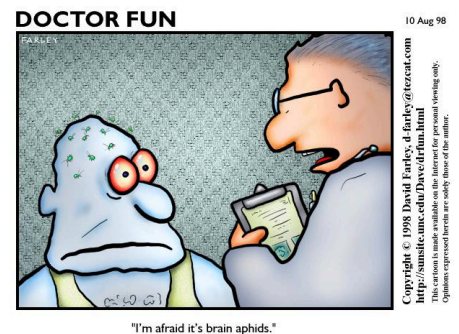
A major goal of Methods involves quantitative understanding and proper statistical interpretation. Statistical instruction will occur throughout the course through class examples and analysis of class data. Most of this work will occur in class. **Development work in R (R1 and R2) can be collaborative (and involve AI)** except each person should have their own notes and code archive. However, realize that each student will need to demonstrate independent abilities at the end of the course.

- A. R1
- B. R2
- C. R Competency Demo

5. Visual and Graphic Representation (2 assignments; 25 points each = 50 pts) = 12.5%

Depending on the collection of microplastics data from the San Gabriel River, the course will end with students creating either a data figure or an infographic complete with an appropriate caption.

- A. Draft
- B. Final



PS - Avoid brain aphids. If you feel your brain being sucked away, please alert Dr. Burks at once.

Week	Block	Date	Day	Size	Time	Activity	Notes	Items Due
1	1	8/27	TU	M	8:30 - 9:20 am	<i>Lecture:</i> Introduction and Syllabus		
	2	8/27	TU	L	9:25 - 10:45 am	<i>Activity:</i> Gather Microplastics info		Microplastic Links Doc
	3	8/27	TU	S	10:50 - 11:20 am	<i>Demo:</i> Set up Posit Account	https://posit.cloud/	
	4	8/29	TH	M	8:30 - 9:20 am	<i>Activity:</i> Recap info on microplastics	Read Heard 3-5, 28	Syllabus Check
	5	8/29	TH	L	9:25 - 10:45 am	<i>Lecture:</i> Statistics Overview		
	6	8/29	TH	S	10:50 - 11:20 am	<i>Demo:</i> Load data set - R Studio	Wk 1 cumulative amount of grade: 0 (0).	
2	1	9/3	TU	M	8:30 - 9:20 am	<i>Demo:</i> Finding Sources	Read Heard 6-7, 30 Scan Proki'c et al. 2021	SUN 12 pm: ABTs 1-5
	2	9/3	TU	L	9:25 - 10:45 am	<i>Activity:</i> Identifying Good Literature		
	3	9/3	TU	S	10:50 - 11:20 am	<i>Demo:</i> Using Chat GPT and R Studio	Review normality, 2 sample tests	
	4	9/5	TH	M	8:30 - 9:20 am	<i>Activity:</i> Puzzle Papers	Read Heard 8-10	Annotated Bib + ABT
	5	9/5	TH	L	9:25 - 10:45 am	<i>Lecture:</i> Experimental Design		
	6	9/5	TH	S	10:50 - 11:20 am	<i>Activity:</i> Find a Paper - Applies to Abstract Analysis & Exp't Design	Wk 2 cumulative amount of grade: 6.25 (1).	
3	1	9/10	TU	S	8:30 - 9:00 am	<i>Lecture:</i> Abstracts & Intros	Read Heard 9-10 & Scan Adomat & Grischek 2021	SUN 12 pm: ABTs 6-10
	2	9/10	TU	L	9:05 - 10:45 am	<i>Activity:</i> Get equipment; Go to San Gabriel River & Introduction		
	3	9/10	TU	S	10:50 - 11:20 am	<i>Activity:</i> Prepare for Thursday		
	4	9/12	TH	XL	8:30 - 11:00 am Return to campus by 11:20	<i>Activity:</i> Collect Microplastics from San Gabriel River habitats (pairs of two)	Scan Razegjo et al. 2021	Abstract/Intro Analysis
	5	9/12	TH					
	6	9/12	TH				Wk 3 cumulative amount of grade: 12.50 (2).	

Week	Block	Date	Day		Time	Activity	Notes	Items Due
4	1	9/17	TU	XL	8:30 -10:45 am	<i>Activity:</i> Start Lab Processing of Field Samples	Read Heard 11 & Vincent & Hoellin 2021	SUN 12 pm: ABTs 11-15
	2	9/17	TU					R Work 1
	3	9/17	TU	S	10:50 - 11:20 am	<i>Activity:</i> Work on Google Doc Methods		
	4	9/19	TH	XL	8:30 -10:45 am	<i>Activity:</i> Finish Lab Processing of Field Samples		Experimental Design
	5	9/19	TH					
	6	9/19	TH	S	10:50 - 11:20 am	<i>Demo:</i> Data QC Review	Wk 4 cumulative amount of grade: 25 (4).	
5	1	9/24	TU	M	8:30 - 9:20 am	<i>Activity:</i> Microplastic Project Checkin	Read Heard 12	SUN 12 pm: ABTs 16-20
	2	9/24	TU	L	9:25 - 10:45 am	<i>Demo:</i> ANOVAs and linear models in R		
	3	9/24	TU	S	10:50 - 11:20 am	<i>Lecture:</i> Results		
	4	9/26	TH	M	8:30 - 9:20 am	<i>Demo:</i> Graphing in R	Read Heard 26	
	5	9/26	TH	L	9:25 - 10:45 am	<i>Activity:</i> Present Proposals		Sigma Xi Pitch
	6	9/26	TH	S	10:50 - 11:20 am	<i>Activity:</i> Q&A R Working Time		
		9/27	FR		4:00 - 5:00 pm	Lecture: Andre Felton Seminar MUST ATTEND	Wk 5 cumulative grade: 37.5 (6).	Revised Sigma Proposal
6	1	10/1	TU	M	8:30 - 9:15 am	<i>Lecture:</i> Discussion	Read Heard 13	SUN 12 pm: ABTs 21-25
	2	10/1	TU	M	9:25 - 10:15 am	<i>Activity:</i> Stats & BioSquare		Stats Evaluation
	3	10/1	TU	M	10:20 - 11:20 am	<i>Activity:</i> Sigma Xi in-class Grant Writing		R Work 2
	4	10/3	TH	L	8:30 -9:55 am	<i>Activity:</i> Draft & Peer Review Abstracts	Read Heard 17-20	
	5 -6	10/3	TH	XL	10:00 - 11:20 am	Class out early (Burks leaves for Seattle) - Seminar Time Compensation		
		10/6	SU		Noon (TX time)	Wk 6 cumulative amount of grade (Heard ABTs = 2x or 50%) adds up to 68.75% (11 things x 25 pts = 275 pts). Adding in the self-evaluation from week 7 brings it to 75% (12 things).		Sigma Grant Final SUN 12 pm: All ABTs Bring Draft Abstract

Week	Block	Date	Day	Size	Time	Activity	Notes	Items Due
7	1	10/8	TU	M	8:30 - 9:20 am	<i>Activity:</i> Peer Review Figure/infographic & Draft Abstract		Self-Evaluation (Based primarily on first 6 wks).
	2	10/8	TU	L	9:25 - 10:45 am	<i>Activity:</i> Working Time Q & A		
	3	10/8	TU	S	10:50 - 11:20 am	<i>Lecture:</i> The Big Picture		
		10/9	W		9 am			Draft Microplastic Figure or Infographic
	4	10/10	TH	S	8:30 - 9:00 am	<i>Activity:</i> Course Evaluations	<i>Total of 25% of grade determined wk 7 based on final assignments (4 things) for a total of 16 things..</i>	
	5	10/10	TH	XL	9:05- 10:45 am	<i>Activity:</i> Demonstration of R Competency		R Competency Demo
	6	10/10	TH	S	10:50 - 11:20 am	<i>Discussion:</i> What to change for Round 2		
		10/11	F		5 pm (TX Time)			Extended Abstract
								Final Microplastic Figure or Infographic