

**LABORATORY IN CLINICAL PSYCHOLOGY
(PSCH 333)**

University of Illinois at Chicago

Fall 2021 Monday and Wednesday 10am – 11:50am Classroom: BSB 2019

TEACHING TEAM

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Student Drop-In Hours: By appointment

COURSE DESCRIPTION AND GOALS

People often think of clinical psychologists first as therapists, but research is a big part of the job of a clinical psychologist. Clinical psychologists conduct studies on the causes of psychological and behavioral disorders, ways to prevent these disorders, and the development of new treatments for these disorders. Although the primary focus is trying to understand and help people with psychological or behavioral problems, there are many ways researchers contribute to this goal. Investigating genetic factors that put people at risk for depression, examining how childhood trauma influences how someone responds to stress as an adult, testing how social support affects recovery from addiction, or developing a new treatment for anxiety would all be examples of clinical psychology research. Because clinical psychology research strives to understand "what is going on" at multiple levels from brain to behavior to society, a clinical psychologist must be able to critically evaluate research that uses many different research methods, and to use this information to design new studies that will add to our knowledge.

Thus, the course goals are:

1. Develop your ability to critically evaluate clinical psychology research –

You will take a critical look at existing research on topics of interest to you - considering assumptions, applying logic, and evaluating evidence. By doing this you will be more able to evaluate scientific studies in general, not just in clinical psychology.

2. Gain skills in designing and conducting clinical psychology research -

You will learn how to formulate research hypotheses, transform your ideas into a study, and see results, as you develop and run your own research studies. While we will focus on clinical psychology topics, these skills are handy whenever you want to figure out what is causing something to happen.

3. Learn how to present your findings to others - Research is only useful if it is communicated. Thus, you will also learn how to present your research effectively. We will teach you two ways scientists commonly use: A poster and a paper. Clear communication is key in any field, so the feedback you get on these assignments can help you in many possible careers.

PREQUISITES

This is an advanced class where you will apply knowledge you have gained in previous courses. Students must already have credit for PSCH 100 (Introduction to Psychology), PSCH 242 (Introduction to Research in Psychology), and PSCH 343 (Statistical Methods in Psychological Science). In addition, you should have credit for or be concurrently enrolled in PSCH 270 (Abnormal Psychology) or PSCH 210 (Theories of Personality). If you have not taken these prerequisites, you can't take this class yet.

COURSE MATERIALS

There are a few reading assignments, which will be available in the Blackboard site for this course. However, reading assignments are minimal because you are expected to select your own reading based on your research projects in the class. So YOU will be identifying what you need to read in order to complete your own research projects.

We will be using APA style, 7th edition for assignments. I will make copies of the manual available in class, and you can also use these online resources:

- <https://apastyle.apa.org/style-grammar-guidelines>
- <https://researchguides.uic.edu/styleguides/apa>

COURSE REQUIREMENTS

Class Participation – 20% of grade: This course requires in-person attendance at interactive lectures and work periods that take place during the scheduled class time. It is critically important that you regularly attend and participate in class, for several reasons: 1. Classes are “hands on” - you will actually be conducting research during class. 2. The course moves rapidly, and classes build on one another to provide the skills you need to do research, so missing class makes it hard to catch up. 3. The TA and I provide a lot of individual assistance during class, so even if research is not your best area, by attending regularly you can get one-on-one help and do well. Because in my experience active participation is so important to your success, I have made it part of your grade. However, I also recognize students have legitimate reasons they need to miss class. I have come up with the following policy to try to provide flexibility while making sure you don't fall behind:

1. You can drop one participation point. You can miss one class during the semester, no questions asked, and still get a 100% in participation. If you don't miss any classes, you get a bonus point!

2. There are two ways to get each participation point.

Default Option: Attend and participate in class. To get your point this way, you just need to attend and participate in class. Participating means:

- On-time to a reasonable degree (not more than 10 min. late, and not consistently late)
- Completing what you are supposed to bring/do in class as listed on the syllabus, uploading to class Google Drive for review if needed

- Engaging constructively (e.g. on topic, not making personal comments, giving concrete suggestions for improvement when asked)

Make-Up Option: Watch the recorded class and check in with the professor to make a plan to make up any in-class work. All classes will also be recorded and posted to Blackboard along with all slides and materials, as I understand life happens, and sometimes people miss class. To get your point this way, you need to do two things. 1. Watch the recorded class by 5pm Friday of the week it was presented. 2. Either come to my drop-in hours that week or schedule a separate time to check in with me, also by 5pm Friday of that week so we can make a plan to catch you up on any in-class work or material. Just sending me an e-mail does not count, I need to check in with you interactively, in-person, by video conferencing or by phone, so I can make sure you understood the material. This option is intended to help you out in case of emergency or illness. It is not intended to be the regular way you attend class. If you are using this option often, I will ask for documentation of the reasons you can't attend class.

Research Assignments – 65% of grade: Consistent with the focus of this course on applying knowledge to real activities, there are no exams. Instead, most of your grade comes from assignments you will do while carrying out two major research projects. These will be: 1. A field study of online behavior; 2. A laboratory study. The field study will be done in collaboration with 3-4 people who are interested in similar topics. You will come up with the idea and conduct your field observations with your group, but produce an individual product that will be graded individually. The laboratory study will be an individual project. The breakdown for research assignments is:

Basic Training (10%): To do research you need to understand the ethical issues involved, so you will complete two online training courses in ethics.

The breakdown for basic training is:

Online CITI Ethics training (5%) – This is the real training required of all researchers at UIC. It will teach you about the major ethical issues and principles involved in doing research with real people as your subjects.

Online plagiarism course (5%) – Science builds on the work of others, and it is ethically important to credit others for their ideas. This course will help you identify what plagiarizing is, and how to avoid it.

Field Study (20%): There are some things we can learn about people just by carefully observing their natural behavior “in the field”. In the past we would watch people in public settings like on campus, or in the park. But now a lot of our lives are carried out in public online (e.g. on Twitter, on TikTok). There is also more content relevant to clinical psychology, like discussions of depression or eating disorders, in online forums than in public on campus. Thus, your interest group will select a topic that you can observe in public online venues. You will first produce an annotated bibliography evaluating the research that has already been done on your topic, to help you pick a hypothesis and refine your study. Each group member will then complete a certain number of observations. Group members will pool their observations to make a group data set, and conduct statistical analyses together to test their hypothesis, but each individual will complete their own poster based on the results. Therefore, although your group may share references to prior studies and results, you should not share the text of your annotated bibliography, or the introduction, hypotheses, methods, or discussion sections of your poster.

The breakdown for the field study is:

First Annotated Bibliography (5%) – This will allow you to organize and evaluate the research that already exists on your topic. A minimum of 5 scholarly sources (original research articles, meta-analyses or literature reviews) should be summarized.

Individual Poster (15%) – The scientific poster is one major way scientists share their research, and a nice way to learn how to describe the major parts of a study (Introduction, Hypotheses, Methods, Results, Discussion) before you try writing a full paper.

Laboratory Study (35%): This will be a laboratory study using a task that you will program and administer to your classmates using OpenSesame (a psychological study presentation software). We will talk more about what clinical psychology laboratory studies can look like as the class progresses. You will first pick a topic that you can learn about using a laboratory study. You will then do an annotated bibliography to evaluate the research that has already been done on your topic, and to refine your study idea. You will write a program that will run your study with help from me and the TA, and your classmates will complete it. You will do statistical analyses on the data to test your hypotheses, and write a final APA-style paper (10-12 pages) describing your findings. The breakdown for the laboratory study is:

Second Annotated Bibliography (10%) – This will allow you to organize and evaluate the research that already exists on your topic. A minimum of 10 scholarly sources (original research articles, meta-analyses or literature reviews) should be summarized.

Drafts - Introduction, methods, results, discussion (5%) – You will turn in a draft of each section of your paper for feedback. There are one or two points attached to each draft to encourage you to turn it in, but these are not “graded”. Instead they are chances for the TA to help you fix things before the final paper. It is to your advantage to put your best effort into these, so that you can get the feedback you need to ace the final paper.

Final paper (20%) – This will be an APA-style paper (10-12 pages) describing your study and results. You will get examples and our entire scoring system as the semester progresses, and you will do drafts of each section (see above), so although this may seem a like a lot of writing, hopefully by the time you get to the end of the class, you are mostly pasting together things you’ve already written.

Research Participation - 15% of grade: To meet the educational goals of this course, everyone in the course will be conducting research and collecting data. As a member of the class, you are required to participate in the research conducted by your classmates and collect data that they will use, just as they are required to participate in your research and collect data you will use. The breakdown for research participation is:

Contributing data to group field study (5%): See the field study description for details.

Completing classmates’ laboratory studies (10%): See the laboratory study description for details.

SUMMARY OF GRADING

Class Attendance and Participation – 20%

Research Activities and Assignments – 65%

Basic Training – 10%

- Online CITI Ethics training (5%)
- Online plagiarism course (5%)

Field Study – 20%

- First Annotated Bibliography (5%)
- Individual poster (15%)

Laboratory Study – 35%

- Second Annotated Bibliography (10%)
- Drafts - introduction, methods, results, discussion, graph (5%)
- Final paper (20%)

Research Participation - 15%

- Contributing data to group field study – 5%
- Completing classmates' laboratory studies – 10%

Overall grades will be on the following scale:

A = 90 – 100%

B = 80 – 89%

C = 70 – 79%

D = 60 – 69%

F = Below 60%

COURSE POLICIES

COVID Safety: Based on UIC's current policies, we are expecting this class to be in-person without social distancing, but with everyone masking. Particularly because we are working closely with each other in a smaller classroom, it is important for everyone who can be to be vaccinated and masked. UIC is requiring all students to get a COVID-19 vaccine before this semester and to disclose their vaccination status, OR if they are not able to get a vaccine, to complete daily health checks and weekly saliva testing. If you have not completed these steps, you cannot be in class. However, even if you are fully vaccinated, UIC is still requiring masks in indoor spaces, including in our classroom. While you are in class you must have a mask covering both your nose and mouth at all times. We will issue reminders to you the first few times if we notice your mask is not correct, but if you continue to not correctly mask, you will not be able to safely participate in class that day. You will be asked to leave, and will lose your participation point. If you are repeatedly not correctly masked to attend class, you may lose additional participation points or be unable to finish the class, and will be reported to the Dean of Students for disciplinary proceedings. If you have a medical issue or disability that prevents you from wearing a mask, please contact Dr. Wardle with documentation to discuss accommodations ASAP.

Turning in Work: You will be turning in two types of work in this class.

1. In-Class Work: This is work you will be doing in class that we need to check or comment on, such as the program you will use to collect data in your lab study. These will not be graded, but turning them in will be required to get your participation point the day they are due. In-class work will be turned in to a Google Drive folder we will set up and share with you, and are due by the end of

the accompanying class. If you miss turning one in due to absence from class, you can complete it as part of making up your participation point for that class – talk to Dr. Wardle to make a plan for this if needed.

2. Final Assignments: These are the end results of your research, such as your poster and paper. These will be turned in to Blackboard, and are due by 5pm on the date listed on the syllabus. Blackboard has a tendency to “go down” at inconvenient times. If there are problems with Blackboard, assignments will be accepted via email to Dr. Wardle as a safety net (with the same 5:00pm deadline). Late assignments will be accepted up to 7 days (one week) after the deadline, but will be penalized 5% of total possible points for each day late (i.e., “a half letter grade”). For example, if you earned 95 out of a total 100 points on an assignment originally due on 9/23 at 5:00pm, and turned it in at 5:05pm on 9/23 (five minutes late), you would receive a grade of 90/100. If turned in before 5:00pm 9/24, you would receive 85/100. If turned in anytime on 9/25, you would receive 80/100. After 7 days, your grade would be 0 for the assignment. Exceptions can be made for emergencies, such as medical problems or catastrophic tech difficulties. If something like this happens, contact Dr. Wardle ASAP to work out a plan.

Non-class Use of Computers, Phones and Electronics: I require students to put their phones away during class, and not use computers for anything but class work. The goal is to minimize distraction for you and people around you. When you have personal electronics out, it is far too easy to check email, browse social media, or shop during class. All of that detracts from your ability to follow the material and get the most out of the education you’re paying for.

Please note, I am on-call for a clinical trial of a new medication for cocaine addiction during class hours, so I will be leaving my phone on only for calls from that study, and may need to “step out” of class to respond in the event there is a patient emergency.

Class Etiquette:

Everyone is expected to behave maturely and professionally in class. That means:

- be courteous and respectful to others;
- express your own opinions in an appropriate manner;
- refrain from discriminatory or hateful speech;
- use your computer for course-related purposes only;
- provide constructive feedback with concrete suggestions for improvement when requested to do so, avoiding personal comments;

Accessibility: I am committed to this course being accessible to all students, regardless of race, ethnicity, religion, gender identity, economic resources, or disabilities. For adjustments that don’t touch on grading (e.g. having a notetaker, recording lectures, advanced notice on particular topics), just let me know. You don’t need to have a documented disability to request changes to make the course accessible to you. I am happy to work with you to figure out what will help. If making the course accessible to you requires adjustments that touch on grading (e.g. extended time on assignments), I am still happy to make those changes. I will just ask that you register with the Office of Disability Services (ODS) and bring a letter from the DRC documenting the necessary accommodations to me. You can contact ODS at (312) 413-2103 (voice) or (312) 413-0123 (TTY).

Plagiarism: To plagiarize is “to steal and pass off (the ideas or words of another) as one’s own” (Merriam-Webster Dictionary). Plagiarism includes not only direct copying of source documents, but paraphrasing others’ written or verbal comments without indicating the original source. It is especially important to avoid this in science, because we need to be able to check your sources to evaluate your evidence. Therefore, we will use SafeAssign to automatically screen for plagiarism in all assignments submitted to Blackboard. The consequences of submitting plagiarized work can be a) receiving a failing grade on the assignment; b) receiving a failing grade in the course; or c) being expelled from the university.

Academic Integrity: Students must abide by the academic integrity guidelines established by the university, and described at <http://www.uic.edu/ucatalog/GR.shtml#qa>. Failure to maintain behavior according to these guidelines is evaluated in accord with the Student Disciplinary Policy.

Religious Holidays: I tried to avoid having student projects be turned in or completed on religious holidays. However, there may be some conflicts with our scheduled class days. If you have a religious observance on a deadline or class day, let me know at least a class period in advance, and we will work out a plan. Religious holidays are protected by University policy (<https://oae.uic.edu/religious-calendar/>), and you will not be penalized for taking them.

Incomplete Grades: There are fairly strict guidelines on when I can give an incomplete grade in the class, and for getting incomplete grades off your transcript. You can see the full university policy here on incomplete grades here (https://registrar.uic.edu/student_records/grading_system.html). If you have a major emergency that you think may keep you from completing the class, the most important thing is to talk to me about it as soon as possible. I can’t issue an incomplete after final grades are submitted.

HELPFUL RESOURCES AND TIPS

Drop-In Hours:

I will be hanging out in my Zoom Office, listed at the top of the syllabus, during drop-in hours, just waiting for you to show up. Drop by anytime during those hours, this time is for you! You can also set up a separate time to do a video or phone chat with me or with your TA if those hours don’t work for you. If you know that in-person help works best for you, that is also fine. Just let me know that you want to meet in-person and we will find a time. If you have a question, are concerned about your performance, or want to connect with me or your TA about your interest in the field, drop-in hours are the place to be!

UIC Writing Center:

This is a writing intensive course, which can be challenging. The UIC Writing Center is an invaluable resource for writing support, improving effective communication, and meeting deadlines. We often recommend it to students. The writing center is doing both in-person and online appointments – visit <https://writingcenter.uic.edu/> to make an appointment. They will work with you at any stage of an assignment, including planning before you even start writing. Feel free to contact them early and often during the course.

UIC Library: The libraries' are reopened, but require a reservation if you want to go in-person <https://researchguides.uic.edu/Reopening/BookingSeats>. The librarians are also available for research support online. You can chat with a librarian from Sun. to Thurs., 7:30 a.m. to 1 a.m.; Fri., 7:30 a.m. to 9 p.m.; and Sat., 7:30 a.m. to 7 p.m. Library faculty are also available for virtual research consultations – fill out the form, and a librarian will send a link to WebEx for the appointment. All of these options are available at <https://library.uic.edu/contact> and are great ways to get help with your literature reviews! You can also check out the subject guides compiled by the librarians for research in psychology here: <https://researchguides.uic.edu/psychology>

UIC Counseling Center: Completing your course work and maintaining your responsibilities outside of school can be challenging in the best of times, and many students may find themselves struggling particularly right now. UIC has some excellent resources for students to use to get support. All UIC students are eligible to receive free counseling services at the UIC Counseling Center at <https://counseling.uic.edu/> or 312-996-3490. Counseling services are primarily online this semester. You can also urgently contact a crisis counselor by calling 312-996-3490, and pressing 2 if it is after hours.

Asking for a recommendation: This is a great course to use to build relationships with a professor that would allow them to write you a recommendation. However, if you think you will want me to write you a recommendation at the end of class, just doing well in the class will not give me enough information to write the strongest letter. Please come by drop-in hours early and often to get to know me and talk about your goals for the course and your career.

SCHEDULE OF TOPICS (SUBJECT TO CHANGE)

Date	Module/Topic	Class Activities	Assignments
Aug 23 rd	Introduction - What is clinical psychology research?	Lecture 1 – “Intro to clinical psychology research” Activities – <ul style="list-style-type: none"> • Review syllabus • Talk about possible topics in clinical psychology 	
Aug 25 th	Introduction - Brief review of research methods	Lecture 2 – “(Very) Brief review of research methods” Activities – <ul style="list-style-type: none"> • Form interest groups 	Start working on CITI certificate, due Sep 8 th
Aug 30 th	Field Study – What is field research?	Lecture 3 – “Field research in clinical psychology” Activities – <ul style="list-style-type: none"> • Meet in interest groups to select a study topic and begin to design a field study • Discuss idea with TA or professor 	
Sep 1 st	Field Study - Learning about your topic: How to find articles	Lecture 4 – “Finding articles” Handouts – “How to use Google Drive” Activities – <ul style="list-style-type: none"> • Work on CITI or plagiarism certificate • Learn how to use Google Drive to store PDFs you find • Library training on conducting lit searches • Practice literature searches using PsychInfo 	Start working on Plagiarism Certificate, due Sep 13 th Start finding 5 articles for next class
Sep 6 th	LABOR DAY – NO CLASS!		

Sep 8 th	Field Study – Learning about your topic: How to read articles	Lecture 5 – “How to read a psychology article” Activities – <ul style="list-style-type: none"> • Compare and discuss your possible articles with your group • Select best five to turn in for review • Put those 5 PDFs in a "Final" folder in your group google drive 	BEFORE CLASS: <ul style="list-style-type: none"> • Bring 5 possible references with you to class to go over with your group In-class: <ul style="list-style-type: none"> • PDFs of final 5 articles selected by group in group Google Drive folder before end of class Due before 5pm: <ul style="list-style-type: none"> • Turn in CITI training certificate to Blackboard
Sep 13 th	Field Study – Learning about your topic: Putting it in your own words and citing	Lecture 6 – “Putting it in your own words and citing” Handouts - “Annotated bibliography example”, “Annotated Bibliography Grading”, “APA reference quick guide” Activities – <ul style="list-style-type: none"> • TA/Professor will review selected articles with each group for quality • Look for replacements for any articles that don’t work • Start annotated bibliography 	Due before 5pm: <ul style="list-style-type: none"> • Turn in Plagiarism training certificate to Blackboard Start first annotated bibliography – Due Sep 22 nd
Sep 15 th	Field Study – Operationalizing variables in the field	Lecture 7 – “Operationalizing variables in the field” Handouts – “Video and text coding examples”, “Blank coding plan” Activities – <ul style="list-style-type: none"> • Meet in interest groups to finalize design of field study and do video/text coding plan 	In-class: <ul style="list-style-type: none"> • Draft video/text coding plan in Google Drive before end of class

Sep 20 th	Field Study – Behavioral coding	Lecture 8 – “Cultural factors in clinical psychology research” Activities – <ul style="list-style-type: none"> • Review draft coding plan with TA or professor • Practice coding in interest groups • Discuss any issues arising in practice • Make any refinements needed to coding plan and upload final plan 	Read BEFORE CLASS: <ul style="list-style-type: none"> • Read Wang, Y.Z., Wiley, A.R., and Zhou, X. (2007). The effect of different cultural lenses on reliability and validity in field data: The example of Chinese immigrant parent-toddler dinner interactions. <i>Social Development, 16, 777-799.</i> In-class: <ul style="list-style-type: none"> • Final video/text coding plan in Google Drive before end of class Start collecting field data, due Sep 27 th
Sep 22 nd	Field Study - Intro to data analysis	Lecture 9 – “Introduction to data analysis” Handouts – “Field Study Data Analysis R Markdown” Activities – <ul style="list-style-type: none"> • Practice in pairs using R to analyze, and Excel to graph tutorial data 	Due before 5pm: <ul style="list-style-type: none"> • Turn in first annotated bibliography to Blackboard
Sep 27 th	Field Study – Data Prep/Analysis	Lecture 10 – “Field study data prep” Activities – <ul style="list-style-type: none"> • Enter Field study data • Identify the analysis you need with the professor/TA • Start your analysis in your groups 	BEFORE CLASS: <ul style="list-style-type: none"> • Do 5 field study observations In-class: <ul style="list-style-type: none"> • Excel file with field study data in group Google Drive before end of class

Sep 29 th	Field Study – How to present results	Lecture 11 – “Presenting your field study” Handouts – “Field study poster example”, “Field study poster grading” Activities – <ul style="list-style-type: none"> • Finish analysis/graphing/table of data in groups • Work on posters 	In-class: <ul style="list-style-type: none"> • Edited group R-Markdown for analysis uploaded to group Google Drive Folder before end of class • Excel file with finished graph or Word file with finished table in group Google Drive by end of class <p>Start working on poster for field study, due October 6th</p> <p>Comments on first annotated bibliography returned</p>
Oct 4 th	Laboratory Study - Formulating a research question	Lecture 12 – “Laboratory designs in clinical psychology” Handouts – “Second Annotated Bibliography Grading” Activities – <ul style="list-style-type: none"> • Meet in new interest groups to discuss initial questions for laboratory study and get feedback 	Start 2 nd annotated bibliography, due October 18 th
Oct 6 th	Laboratory Study – Literature Search	Activities – <ul style="list-style-type: none"> • Technology review – accessing OpenSesame • Meet with professor or TA to get approval on initial question • Open work time on literature search for laboratory study/second annotated bibliography 	Due before 5pm: <ul style="list-style-type: none"> • Turn in field study poster to Blackboard

Oct 11 th	Laboratory Study – Operationalizing variables in the lab	Lecture 13 – “Operationalizing variables in the lab” Handouts – “Example Operationalization Plan”, “Blank Operationalization Plan” Activities – <ul style="list-style-type: none"> • Work on operationalization outline • Describe operationalization of independent and dependent variables to new interest group, get feedback 	In-class: <ul style="list-style-type: none"> • Draft operationalization plan in individual Google Drive
Oct 13 th	Laboratory Study – Finalize operationalization plan	Activities – <ul style="list-style-type: none"> • Additional literature search to identify questionnaires, tasks or stimulus sets you want to use • Meet with professor or TA to go over operationalization plan 	In-class: <ul style="list-style-type: none"> • Final operationalization plan in individual Google Drive <p>Comments on poster returned</p>
Oct 18 th	Laboratory Study - Ethics in clinical psychology research	Lecture 14 – “Ethics in clinical psychology research” Handouts – “Study description example” Activities - <ul style="list-style-type: none"> • Meet in new interest groups to discuss potential ethical concerns with area of study/laboratory study idea • Produce written description of study for participants 	In-class: <ul style="list-style-type: none"> • Description of study for participants in individual Google Drive Due before 5pm: <ul style="list-style-type: none"> • Turn in 2nd annotated bibliography to Blackboard
Oct 20 th	Laboratory Study – Storyboarding your task	Lecture 15 – “Storyboarding your task” Handout – “Storyboard example” Activities <ul style="list-style-type: none"> • Do task “storyboard” 	In-class: <ul style="list-style-type: none"> • Storyboard of task in individual Google Drive (picture OK)
Oct 25 th	Laboratory Study – Programming your task	Lecture 16 – “Introduction to OpenSesame” Activities – <ul style="list-style-type: none"> • Practice programming example task in OpenSesame based on tutorial 	

Oct 27 th	Laboratory Study – Programming your task	Activities <ul style="list-style-type: none"> Review storyboard with professor or TA Start programming your task 	In-class: <ul style="list-style-type: none"> Task so far saved to individual Google Drive
Nov 1 st	Laboratory Study – Programming your task	Activities <ul style="list-style-type: none"> Continue programming your task 	In-class: <ul style="list-style-type: none"> Task so far saved to individual Google Drive
Nov 3 rd	Laboratory Study – Programming your task	Activities <ul style="list-style-type: none"> Finish programming your task Complete your own task 2x to produce sample data 	In-class: <ul style="list-style-type: none"> Completed task and sample data saved to individual Google Drive for review by teaching team <p>Comments on 2nd Annotated Bibliography returned</p>
Nov 8 th	Laboratory Study – How to write an introduction section	Lecture 17 – “How to write an introduction section” Handout – “Introduction section example”, “Introduction section grading” Activities <ul style="list-style-type: none"> Make any needed final changes to task based on review Start working on Introduction section 	Start working on Introduction Draft, due Nov 17 th
Nov 10 th	Laboratory Study – How to write a methods section	Lecture 18 – “How to write a methods section” Handout – “Methods section example”, “Methods section grading” Activities <ul style="list-style-type: none"> Complete classmate’s studies Start working on Methods section 	Start working on Methods Draft, due Nov 22 nd Start completing classmate’s studies, due Nov 12 th
Nov 12 th	NO CLASS, JUST A DUE DATE		Due before 5pm: <ul style="list-style-type: none"> Required number of classmate’s studies completed

Nov 15 th	Laboratory Study – Data Prep	<p>Lecture 19 – “Getting your data ready for analysis”</p> <p>Handout – “R Markdown template”</p> <p>Activities</p> <ul style="list-style-type: none"> • Meet with professor or TA briefly in groups to review data and identify what data preparation steps you need to do 	<p>In-class:</p> <ul style="list-style-type: none"> • In-progress edited excel file in individual Google Drive
Nov 17 th	Laboratory Study – Data Analysis Part 1	<p>Activities</p> <ul style="list-style-type: none"> • Finish prepping your excel file • Review R Markdown template with professor or TA at assigned time, start editing for your data 	<p>In-class:</p> <ul style="list-style-type: none"> • Final edited excel file in individual Google Drive • In-progress RMarkdown in individual Google Drive <p>Due before 5pm:</p> <ul style="list-style-type: none"> • Turn in Introduction Draft to Blackboard
Nov 22 nd	Laboratory Study – Results and Data Analysis Part 2	<p>Lecture 20 – “How to write a results section”</p> <p>Handouts – “Results section example”, “Results section grading”</p> <p>Activities</p> <ul style="list-style-type: none"> • Review R Markdown template with professor or TA at assigned time, continue editing 	<p>In-class:</p> <ul style="list-style-type: none"> • In-progress R-Markdown in individual Google Drive <p>Due before 5pm:</p> <ul style="list-style-type: none"> • Turn in Methods Draft to Blackboard <p>Start working on Results Draft, due Nov 29th</p>
Nov 24 th	Laboratory Study – Discussion and Finish Data Analysis	<p>Lecture 21 – “How to write a discussion section”</p> <p>Handout – “Discussion section example”, “Discussion section grading”</p> <p>Activities</p> <ul style="list-style-type: none"> • Continued data analysis • Start working on discussion section 	<p>In-class:</p> <ul style="list-style-type: none"> • Final R-Markdown in individual Google Drive <p>Start working on Discussion Draft, due Dec 1st</p> <p>Comments on Introduction Draft returned</p>

Nov 29 th	Laboratory Study – Graphing and discussion section	Activities <ul style="list-style-type: none"> • Finish up any needed changes in RMarkdown • Graphing/Table • Work on discussion section 	Due before 5pm: <ul style="list-style-type: none"> • Turn in Results Draft (text only, no graph or table) to Blackboard <p>Start working on Graph or Table, Due Dec 1st</p> <p>Comments on Methods Draft returned</p>
Dec 1 st	Laboratory Study – Wrap up	Activities <ul style="list-style-type: none"> • Provide constructive comments on one other students' paper, continue working on paper, incorporate comments on previous sections 	In-class: <ul style="list-style-type: none"> • Swap draft of Laboratory paper with another student for comments <p>Due before 5pm:</p> <ul style="list-style-type: none"> • Turn in Discussion Draft and Graph or Table to Blackboard <p>Comments on Results Draft returned</p>
Dec 6 th	NO CLASS, JUST A DUE DATE		Comments on Discussion Draft and Graph or Table returned
Dec. 8 th	NO CLASS, JUST A DUE DATE		Due before 5pm: <ul style="list-style-type: none"> • Turn in complete Laboratory Study Paper to Blackboard