PSYC 402: Statistics in Psychology

CRN: 12790 | **Sec:** 9

Meeting: TR: 11:10- 12:30 | MCC 340

Instructor: Michael A. Mangan, MFA, PhD

Office: MCC 430

Office hours: T: 5:00-6:00 | R: 12:30-1:30 (or by appointment)

Electronic communication: use "Inbox" in Canvas (not my UNH email please)

tel# (603) 862.3404

Overview & objectives

We will examine the various statistical methods used in psychological research. The objectives for this course are for you to: 1) learn the basic research methods used in psychology, 2) learn the common statistical methods used in psychological research, 3) understand the rationale underlying the appropriate use various statistical methods, and 4) gain a mastery of basic statistics that will help you be a more critical consumer of information containing statistics.

Course materials

Required text:

Heiman, G.W. (2015). **STAT (Behavioral Sciences), 2nd** Wadsworth/Cengage (Note: New/used/rent/ebook are all fine options.) It's not necessary to purchase any "add-ons" that may be offered. ISBN: 9781285458083

Calculator: It will be helpful for you to obtain a calculator that performs statistical functions.

Technology: You will need a reliable laptop, tablet, or mobile device that supports access to the Internet; up-to-date applications compatible with the UNH learning management system (Canvas). UNH CIS recommends Firefox or Chrome for use with Canvas.

Class meetings: This is an in-person/face-to-face class and all students are expected to attend class. UNH is no longer requiring faculty to provide remote access to any course scheduled for face-to-face meetings. Virtual attendance (Zoom) will not be available. Completing any assigned in-class work remotely without prior approval will result in a "0" for that assignment. Likewise, as a matter of academic honesty, assisting another student to complete work remotely (e.g., sharing the questions and/or your answers) will also result in a "0" for that assignment for all involved. More than one instance of the above-mentioned behavior will result in a "0" for that portion of the course. This course follows a "flipped" classroom model where class time is reserved for hands-on work with course content (active learning). Course content will be covered via videotaped lectures (on Canvas); you will be expected to view this material outside of class, prior to coming to class.

What does the research say about flipped learning?

Flipped Classroom Meta-Analysis Article

Learning best takes place when students are active participants (i.e., engaged cognitively, emotionally, and behaviorally) in the process. This means your attendance and involvement are encouraged and expected. Our class meetings will be structured to include mini-lectures, discussion of student questions ("muddiest points") about the video lecture and/or reading, and work on practice problem sets and other exercises. Please note that we will not cover everything that you read in the video lectures, nor will everything you read or view in the video lectures be covered in practice problems sets or in assessments. I do provide learning objectives that will help you focus your study efforts. **You will need to bring these items to each class**: Your **text** (Heiman), your **calculator**, and **some form of technology** (i.e., laptop, tablet, or smartphone) **that you will use to access the course Canvas space**. **For the best experience, use the latest version of Chrome or Firefox.** Class time is designed to help you gain clarity on course content and to engage with and master the course material. With your participation, this *should* help you do well!

Course policies

Late arrival/early departure: Please arrive to class on time. If you must leave at any time during class, please let me know at the beginning of class.

Attendance: This is an in-person/face-to-face class and all students are expected to attend class. Virtual attendance will not be available. Since we will be covering new material each day, if you miss class you are responsible for getting notes and any other information you may have missed from a classmate.

Excused absence: You can miss up to six classes, ***for any reason***, (including illness, emergency, bereavement, you overslept, forgot, athletics, field trip for another class, and so on). Further accommodations (e.g., make ups) for missed work due to absence will be unlikely.

Unexcused absence: Any more than six absences (for any reason) is excessive and will not be excused. If you're dealing with extenuating circumstances that will keep you out of class more than six days you will need to notify me immediately. You will also need to email the Dean of Students to request that a Dean's Letter be sent to me. Any accommodations are at the discretion of the faculty.

Notification: If you will miss class and you expect it to be unexcused (per the above description), you are expected to notify me in advance (via "Inbox" in Canvas). If advance notice is not possible (e.g., severe illness/emergency), notification is expected within 24 hours. Failure to provide such notification will result in forfeiture of any possible accommodations.

COVID-19 Safety: You are responsible for following any UNH mandated safety procedures.

Course disruption: In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to change when necessitated by revised course delivery, semester calendar or other circumstances. Information about changes in this course can be obtained at the Canvas site or by contacting me via Inbox in Canvas. If the course is not able to meet face-to-face students should continue to check Canvas for announcements and updates to this syllabus as needed.

Class recording: Your classroom is equipped with technology that will provide remote access to class instruction. Because of the need to accommodate potential isolation and quarantine due to the COVID pandemic, lectures or other class meetings for this course may be recorded by the university using UNH media platforms. Such recordings may be available for educational use by students enrolled in the class (including both for instruction and as a review tool), the course instructor(s), and other university officials who support course instruction. Your voice or image may be captured on the recordings, and by enrolling in this course you are consenting to such recording for these purposes. The university and Zoom have FERPA-compliant agreements in place to protect the security and privacy of UNH Zoom accounts. You may not share recordings outside of this course. Doing so may results in disciplinary action.

Classroom-behavior expectations: To ensure a climate of learning for all, disruptive or inappropriate behavior may result in exclusion (removal) from this class. As a reminder, unless approved by your instructor, cell phone use, including text messaging, and videotaping and recording, is not permitted in this class by Faculty Senate rule.

Academic honesty: Plagiarism, cheating, collaborating on work, or other forms of academic dishonesty are not acceptable. Faculty and students have a joint responsibility to ensure the integrity of learning. All work that you submit must be your own except in those instances when I give specific permission to collaborate. When quoting, summarizing or explaining ideas that are based on another's work, whether in print or online, make sure to cite references appropriately. Plagiarism is using another's words. For the UNH complete academic honesty policy, see the current college catalog. Please view the following links - https://catalog.unh.edu/srrr/university-policies-regulations/academic-integrity/ and https://cola.unh.edu/academics/plagiarism-tutorial

Student support resources: UNH provides a number of ways to get academic and technical support with learning. Students can use myUSNH to access the full range of campus resources.

Accessibility services: According to the Americans with Disabilities Act (as amended, 2008), each student with a disability has the right to request services from UNH to accommodate his/her disability. If you are a student with a documented disability or believe you may have a disability that requires accommodations, please contact Student Accessibility Services (SAS) at 201 Smith Hall. Accommodation letters are created by SAS with the student. Please follow-up with your instructor as soon as possible to ensure timely implementation of the identified accommodations in the letter. Faculty have an obligation to respond once they receive official notice of accommodations from SAS but are under no obligation to provide retroactive accommodations. For more information refer to www.unh.edu/studentaccessibility or contact SAS at 603.862.2607, 711 (Relay NH), or sas.office@unh.edu.

Note: Accommodation letters must be sent to me electronically via Clockwork (ask at SAS). Students with accommodations for tests or other coursework are responsible for giving me advance notice from the start of the term so that we may make appropriate arrangements. Without appropriate notification, I will probably not be able to provide accommodations.

Confidentiality and mandatory reporting: The University of New Hampshire and its faculty are committed to assuring a safe and productive educational environment for all students and for the university as a whole. To this end, the university requires faculty members to report to the university's Title IX Coordinator any incidents of sexual violence and harassment shared by students. If you wish to speak to a confidential support service provider who does not have this reporting responsibility because their discussions with clients are subject to legal privilege, you can find a list of resources by visiting https://www.unh.edu/diversity-inclusion/sexual-misconduct Links to an external site.. For more information about what happens when you report, how the university considers your requests for confidentiality once a report is made to the Title IX Coordinator, your rights, and report options at UNH (including anonymous report options), please visit https://www.unh.edu/affirmativeaction/reporting-students.

Sexual Harassment and Rape Prevention Program (SHARPP): SHARPP provides free and confidential advocacy and direct services to survivors." https://www.unh.edu/sharpp

Emotional or mental health distress: Your academic success and overall mental health is very important. If, during the semester, you find you are experiencing emotional or mental health issues, please contact the University's Psychological and Counseling Services (PACS; 3rd floor, Smith Hall; 603-862-2090/TTY: 7-1-1), which provides counseling appointments and other mental health services. If urgent, students may call PACS M-F, 8 a.m.-5 p.m., and schedule an Urgent Same-Day Appointment.

Communicating with me: If you have questions or just want to talk, I encourage you to contact me before or after class, during office hours, by phone or by using *Inbox* in Canvas. You can expect to hear back from me within 24 hours. Please check Canvas regularly (daily) for messages and announcements.

Evaluation

Quests (25%): There will be 13 section "Quests." A Quest is a hybrid of a quiz and a test. As such, they are useful as assessments of learning and as teaching/learning tools (links are located in each topic module). Quests will open at 12AM, and are to be taken remotely via Canvas, by the end of the day (11:59 PM) on the due dates listed in the course schedule (see below).

- Quests cannot be taken once they close. Do not begin any Quest until you are prepared to complete it. If you begin by mistake (for any reason), it will count as an attempt. **Please save all of your work (e.g., all computations) as I will need you to show it to me if you have questions after completing a Quest.**
- You are expected to work independently. It is an unfortunate fact that some (not all) students share questions/answers and will post them online. This defeats the purpose of the assignments, which is to facilitate learning. To post/share any assessment items is a violation of UNH academic honesty policy and also violates the policies of some sites (e.g., Quizlet). Any evidence of sharing assessment questions/answers in this course will be reported (e.g., to the website and to the student's college dean).
- You will need a reliable laptop, tablet, or mobile device that supports access to the Internet and up-to-date applications compatible with the UNH learning management system (Canvas). **Make sure your technology and calculator are in good working order prior to taking any Quest.** ***Have a "plan b" in place in the event of issues.*** **For the best experience, use the latest version of Chrome or Firefox.** If you do not, you will probably run into trouble (i.e., you'll not be able to see images that you'll need to complete a problem). If you run into technical trouble, you'll still need to complete the Quest so please be sure to plan ahead.
- Quest items will include a mix of items. Some items will assess your understanding of concepts; others will require you to make computations and to apply what you're learning. All items align with topic learning objectives (available in Canvas) and will pertain to the concepts and procedures covered in readings and lecture. Cognitive science shows that quizzing supports learning, so this is a relatively "low-stakes" means of promoting preparation and to give you an idea of the kind of items you can expect to see on the cumulative final exam. Before taking Quests, review the learning objectives provided, study the text, study your lecture notes and complete "Comprehension Checks" (located in each topic module "Video Lectures" space) and problem sets. Prior to taking each Quest you'll have the opportunity to ask questions in class about the topic and problem sets (see below).
- Quest links are located in each topic module on Canvas. All Quests are open book/open notes. Be very careful to not start a Quest until you're ready to take it. If you do, you'll forfeit the opportunity to take it. **You will have 30 minutes to complete Quest 1 - Quest 5. Thereafter, you'll have 45 minutes for Quests 6 -12.** Quests cannot be taken once they close so be sure to complete them on the due date listed in course schedule.
- Assessments can be used to support learning. Thus, in class meetings subsequent to each Quest due date, your score, questions/answers will be viewable. At that time, you can look at your work and make note of any items that you'd like to discuss in conference. Thereafter your questions/answers will no longer be accessible on Canvas. If you do have questions, please be prepared to 1) be as specific as possible, and 2) show me your work (e.g., all computations). It's very likely that I will not be able to help you if I cannot see your work.
- **Evaluation:** One point per Quest item. There are no makeups for Quests. Once they are closed they cannot be taken. However, **I will drop one lowest score** (for any reason, including excused absence).

Cumulative final (25%): The final will be taken remotely using Canvas (see course schedule for test date). It will be cumulative. The exam will comprise 35 items pertaining to material covered throughout this course.

Make sure your laptap (use Chrome or Firefox) and calculator is in good working order prior to taking the exam. ***Have a "plan b" in place in the event of issues.*** If you do run into trouble, you'll still need to complete the exam, so please be sure to plan ahead.

- The final must be taken as scheduled per the date listed in the course schedule (below).
- You'll have 120 minutes to complete the exam.
- You are expected to start/finish the test on time. Anyone starting late will not be able to receive extra time.
- You are expected to work independently. Not doing so is considered a breach of UNH academic honesty policies.
- To receive credit, when you've answered all items, you'll need to be sure to hit the **"submit quiz"** button on your screen.
- To prepare, review the materials you used to prepare for Quests (e.g., learning objectives, lecture PDFs/notes, practice problems, your text) and prepare any note sheets you will use. I've also made practice tests available for you to complete as well (available on Canvas). To refresh your memory, practice tests will include items that concern all prior chapters (excepting the last two most recently-covered topics in chapters 10 and 13). Practice tests do not count toward your final grade.
- To complete the final you will need a reliable laptop or tablet**. I do not recommend using a mobile device. If you do, do so at your own risk.** that supports access to the Internet and up-to-date applications compatible with the UNH learning management system (Canvas). For all uses of Canvas (especially quizzes and tests) UNH CIS recommends using **Firefox** or **Chrome.**
- **Evaluation:** One point per item. Your score will be available as soon as possible after the exam. If you have questions about your work, you may review the exam with me privately in conference by appointment.

Participation (30%)

- **Problem sets (PS):** On "PS" days (see course schedule), at the start of each class, I will ask you to write (and submit) a brief response to a "probe" question pertaining to the topic being covered that week. I will then ask you to discuss your responses with each other. l will then give a "mini-lecture" about the prompt/topic. You will then have the remainder of the class to work on problem sets (accessible on on Canvas).
    - Probes and completion of problem sets are structured to engage you with the material and to reinforce learning of course content. Probes are a quick way to assess comprehension of core concepts pertaining to each topic. If you've done the reading and viewed video lectures prior to coming to class, answering probe questions should not be difficult. Problem sets tend to emphasize problem solving and computations rather than comprehension of concepts. ***However: You are expected to understand the associated concepts being covered in the course teaching/learning materials. Quests and the final exam will include a mix of conceptual problem solving/computation types of questions.***
    - It's important that you arrive to class on time and are prepared to work on problem sets and to ask questions. This means you'll need to watch the video lectures and do the reading in advance of coming to class on PS days.
    - You may work independently and/or with a peer.
    - Prior to reading the text and viewing video lectures, I recommend that you study each module's "Overview," paying special attention to the learning objectives listed and also that you use these objectives to guide your reading and lecture viewing. I also suggest that you complete the "Comprehension Checks" provided in each topic module's "Video Lectures" space. By so doing, you will know the type of information you're expected to learn from reading and viewing and this will guide your learning efforts while in class. You may work together on problem sets if you choose.

- **Evaluation:** credit/no credit. To receive credit, in-class attendance is required. You WILL NOT need to submit answers to problem sets. You WILL submit a brief response to the question given at the start of class (noted above). Responses should be your own and comprise an honest attempt to provide a complete and thoughtful answer to the question. Anything short of this may receive partial or no credit. If you arrive late, it's likely you will miss the "probe" question and will be unable to complete the work for credit.

- **Problem set review (PSR):** On "PSR" days (see course schedule), you will complete a short exercise. We'll then go over the exercise as a group and you may ask questions.
  - Please arrive to class on time. If you arrive late, it will not be possible to give you extra time to complete the work
  - You may work independently and/or with a peer.
  - On PSR days 1-5 you'll have **30 minutes** to complete the exercise. For the meetings 6-12 you'll have **45 minutes**. Since these time limits map on to the amount of time you'll have for the Quests associated with each exercise, it will be a good way to assess where your at with the material prior to taking Quests. It's okay if you're not able to complete the entire exercise in this time frame as we'll go over the exercise as a group and you may ask questions to clear up where you're running into any issues.
  - In preparation, I suggest arriving to class with your problem set (from the "PS" day) fully completed (you will not be required to turn your problem set answers in). I also suggest that you arrive having completed the "Comprehension Checks" for each topic. You will have the opportunity to ask questions.
  - **Evaluation:** credit/no credit. To receive credit, in-class attendance is required. You will not turn anything in. However, you are expected to be able to show me your work for each exercise should I need/ask to see it. A record of your completed work will be a useful tool that you/we can refer to later, if need be. If I cannot see your work, it's unlikely that I'll be able to help you. **To these ends, please acquire and use a specific notebook for PSR exercises. Your answers to each exercise should be dated (for easy reference) and comprise an honest attempt to provide complete and thoughtful answers.**

SPSS Assignments (10%): The psychology department requires 402 students to be introduced to at least four statistical procedures using SPSS (Statistical Package for the Social Sciences). There will be a total of four online assignments with a total of four points possible for each assignment. The assignments will provide a basic introduction to SPSS. You are expected to work independently and to complete and submit assignments online (use links provided on Canvas). I go over each assignment in detail in video tutorials that accompany each assignment. Evaluation: For more details on this assignment and how work will be evaluated, please thoroughly and carefully review the "SPSS Assignments" materials provided in "Modules" in our Canvas space.

Laboratory participation (10%): Students will complete **three credits** of laboratory experience. The lab sign-up procedure is Web based and requires you to register for **Sona Systems**, so please thoroughly and carefully review the "**Lab Experience"** materials located in "Modules" in our Canvas space. **Evaluation:** A total of **three (3) credits are possible**. Credit will be assigned by experimenters and entered by me in "Grades" on Canvas at the close of the term.

Note: If the instructor of this section is conducting a research study in SONA for research credit, students in this section are not obliged to participate in that specific study just because the instructor is conducting it; there is no benefit to students in this section to choose to participate in the instructor's study beyond the allocation of research credit earned, and students are free to choose any available study in SONA for which they meet the eligibility requirements (or complete the alternate assignment).

Missed and late work: For the next 15 weeks, my assumption is that you have made a commitment to this course and that you understand your responsibilities. To avoid conflicts, please let family members, employers

and anyone else who is relevant know of your responsibilities for this course. If you anticipate conflicts or are at any time unable to continue on with any portion of this course, please contact me immediately.

- Students have six excused absences (for any reason).
- I will drop one lowest Quest score (for any reason).
- Reductions for late computer assignments will be made per their rubrics.
- Missed labs (Sona) cannot be made up.

Final grades

Your success in this class will mainly be determined by your level of effort and motivation.

Your final grade will be assigned based upon a weighted percentage of the various evaluated activities you will complete for this course. The **Total %** you can see in "Grades" in Canvas will fluctuate over the term as scores are entered. In assigning final grades, I will use grades as computed by Canvas, which assigns letter grades to weighted total percentages taken out to the second decimal place (**e.g., 89.45%, 89.54%, 89.89%, 89.98% are all assigned a letter grade of B+**). This means that small amounts count!

In anticipation of some students asking me to give their grade a "bump up" to the next highest grade: In fairness to all, I generally do not do this. However, in some cases, and **only upon a student's direct request and if that student is within </= 0.25 from the next highest grade (e.g., 93.75%; 93.85%, etc.)** I will review the student's overall class performance (i.e., overall attendance, quality/apparent effort of responses to all in-class exercises and activitie**s,** I may ask to review your PSR notebook). Based on the outcome of the review, a student's grade could ***possibly*** be "bumped up" to the next highest grade ***based on merit***.

Evaluation Activities	**Weights**
Quests	25%
Final Exam	25%
Participation (PS/PSR)	30%
Computer Assignments	10%
Lab Experience	10%
Total	**100%**

Grade	Percent	Grade Points	Level of Achievement
A	94-100	4.0	Excellent
A-	90-93	3.67	
B+	87-89	3.33	Good
B	84-86	3.0	
B-	80-83	2.67	
C+	77-79	2.33	
C	74-76	2.0	Acceptable
C-	70-73	1.67	
D+	67-69	1.33	Poor
D	64-66	1.00	
D-	60-63	0.67	
F	**=59**	**0**	**Failure, no credit**

COURSE SCHEDULE

Mtg.	Date	Topic	Reading	Stuff Due
1	8/27	Course Overview/Introduction		
2	8/29	"	Huff & Geiss reading (on Canvas)	
3	9/3	Statistics and the Research Process	Chapter 1	**PS_1**
4	9/5	"	"	**PSR_1** **Quest 1**
5	9/10	Frequency Dist./Percentiles	Chapter 2	**PS_2**
6	9/12	"	"	**PSR_2** **Quest 2**
7	9/17	Central Tendency	Chapter 3	**PS_3**
8	9/19	"	"	**PSR_3** **Quest 3**
9	9/24	Variability	Chapter 4	**PS_4**
10	9/26	"	"	**PSR_4** **Quest 4**
11	10/1	Z-Scores	Chapter 5	**SPSS Module 1** **PS_5**
12	10/3	"	"	**PSR_5** **Quest 5**
13	10/8	Probability	Chapter 6	**PS_6**

14	10/10	“	“	**PSR_6** **Quest 6**
15	10/17	Z-test	Chapter 7	**PS_7**
16	10/22	“	“	**PSR_7** **Quest 7**
17	10/24	T-test Single Sample	Chapter 8	**PS_8**
18	10/29	“	“	**PSR_8** **Quest 8**
19	10/31	Ind. Samples & Rptd. Measures T-tests	Chapter 9	**PS_9**
20	11/5	“	“	**PSR_9** **Quest 9**
21	11/7	One-Way ANOVA	Chapter 11	**SPSS Module 2** **PS_10**
22	11/12	“	“	**PSR_10** **Quest 10**
23	11/14	Nonparametric tests	Chapter 13	**PS_11**
24	11/19	“	“	**PSR_11** **Quest 11**
25	11/21	Correlation/Regression	Chapter 10	**PS_12/SPSS Module 3**
26	11/26	“	**“**	**PSR_12** **Quest 12**
27	12/3	Course wrap up		**SPSS Module 4**
28	12/5	Review day		
Final Exam	12/11	3:30-5:30		

Note: The content of the syllabus and course schedule may be changed at instructor’s discretion.