

PSY-K300-SPRING 2021

Section #3630

Asynchronous Lectures: M/T, W/TH through Canvas

Workshops (Optionally Synchronous, Also Recorded)

HOGWARTS SCHOOL OF WITCHCRAFT AND WIZARDRY (OR THE MAGIC OF STATISTICS)



Headmistress (Instructor): Tessa Benson-Greenwald

E-mail Address: tmbenson@iu.edu

Office Hours via Zoom:

Monday 2:00 PM – 4:00 PM

Thursday 10:00 AM – 12:00 PM

Or by appointment

Deputy Headmistress (TA): Remus Lupin

E-mail Address: rlupin@iu.edu

Office Hours via Zoom by Appointment

Dear K300 Student,

We are pleased to inform you that you have been accepted to study at Indiana University's secret branch of Hogwartz School of Witchcraft and Wizardry (disguised as a statistics course to fool the muggles, or non-magic folk). Please find enclosed our plan of study.

Yours sincerely,

Tessa Benson-Greenwald
Headmistress

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Your Time At Hogwarts

Over the next 7 years (15-muggle weeks due to some magical finessing) you will embark on a magical journey as a Hogwarts student. During this time you will learn the ups, downs, ins, and outs of statistical techniques!

Goals of a Magical Education (in Statistics)

Many students think of K300 as a math course – leading to lots of anxiety and concerns about whether or not they can do well in this class. First, every single student is capable of doing well in this class with some hard work and effort. The best way to succeed is to ask questions early and often. I (and Remus) are here to help you understand but we can only address questions when we know that they are there. I will often check in about what questions you have. However, the asynchronous nature of this course makes it *slightly* trickier for me to know what you are struggling with unless you tell me.

Second, while it is true that we will perform some calculations, or spells, along the way, this course is NOT about the math. This semester will focus primarily on helping you understand the logic and principles of statistical analyses – working to understand what the numbers do and do not tell you. It will NOT be focused on mindlessly plugging numbers into formulas without knowing why so that you can generate numbers that mean nothing.

By the end of this course, student will be able to:

- Select and calculate appropriate descriptive statistics and make visual representations of data
- Demonstrate an understanding of the importance of sampling randomness and measurement in statistical inference
- Understand population parameters and how to estimate them
- Pick an appropriate statistical technique to test a hypothesis about a particular treatment or experiment
- Explain and interpret p values with respect to the null and alternative hypotheses
- Interpret and manipulate basic statistical notations/formulas. Example formulas will include: mean, variance, standard deviation, calculation of z scores etc.
- Perform a variety of statistical analyses with the appropriate software tools
- Discuss a set of results with respect to real world relevance and suggested next steps
- Identify and critique examples of good and bad statistical reasoning in the popular press

Textbook & Course Materials

We will not be using a textbook for this course. All of the readings and notes that you need will be presented “in class” and/or provided for you on Canvas.

Technology We’ll Be Using

For Course Content/Communication

Canvas will be used for most of the actual course content. All lecture/workshop recordings, quizzes, homework assignments etc. will be posted on Canvas. Homework assignments and exams will be turned in via Canvas. **Please do not use the Canvas-based message service.**

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Zoom will be used for the Friday morning workshops (which are optional to attend live) and for office hours.

IU E-mail will be used for directly communicating with either myself (the instructor) or Remus (the TA). I expect you to be checking your IU email account (not just Canvas messages) no less than once a day. I will send frequent messages to the class with announcement, clarifications, instructions and/or updates. You are responsible for the content of these messages exactly as if the material had been presented in class. Saying "I didn't read the e-mail" or "I haven't checked my e-mail for a few days" will not be considered a valid excuse for missing information. All class-wide messages will be sent using the Canvas Announcement tool, so archived messages can always be found on the Canvas sites.

Slack will be used to provide a more informal communication network and to build community amongst the class (and particularly amongst your house). The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than e-mailing questions to the teaching staff, I encourage you to post your questions on Slack. There are a variety of channels currently set up including: private channels for each of the four houses, a general question channel (Hogwarts_general), homework question channel, and a technology question channel. Requests for additional channels are welcome.

For Statistical Analysis

Excel will be used in the first 3 weeks for some introductory statistical calculations such as: Central Tendency, Variability + Standard Deviation, Histograms etc. Workshops using Excel will be conducted using a Windows computer (because that is what I have). Mac-based Excel should work pretty similarly. Google Sheets may have some irregularities. When possible, tutorials for Mac-based Excel and Google Sheets will be posted.

Web Applets will be used to get a hands-on understanding of the underlying principals of models and model evaluation. The links to these applets will be provided.

JASP will be used to analyze sets of data using a variety of statistical tests such as t-tests, ANOVAs, and correlations. We will not start using JASP until April 2nd but when we do JASP will need to be installed onto your computer or laptop. To do so, you can visit the [JASP website](#) and then click the "Download JASP" button that is on the front page. That link will take you to a download page where you can pick a Windows, Mac, or Linux version depending on what you are running. I will put out an announcement a week before we need this to remind you to download it and with more information/resources.

Course Format

Your time at Hogwarts will be spent engaging with a variety of different activities designed to give you a hands-on experience to grow your understanding of the magic of statistics. Traditionally, magical learning involves exploring and learning about the theory that makes magic possible as well as developing a mastery of the application of magic. As we will be learning about the magic of statistics, we will follow in this tradition.

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Houses and The House Cup

You will be sorted into 1 of the 4 Hogwarts houses: Ravenclaw, Hufflepuff, Slytherin, and Gryffindor. These houses will serve 2 main purposes.

Community. This is a large, asynchronous class and so having a smaller subset of students with whom you can communicate about assignments and ask questions will hopefully foster some sense of connection with your classmates. You may discuss exams (which are open-book/classmate) with your housemates as long as your work and the answers you submit are your own (more below under Exams).

House Cup. Each week, at least 1 optional House Cup Activity will be posted that will give you additional engagement with the course material. These may take the form of review quizzes/activities, submitting questions for topics to review, or reading an excerpt from an actual article (journal or popular press) etc. These activities will be posted each week on Sunday and will be “due” each week by 11:59PM ET (Indiana time) on Saturday. Although these activities are completely optional, completing them **will benefit both you AND your house.**

Every time you complete a House Cup Activity it counts toward your House’s point total. House point totals will be aggregated across house members at the conclusion of each Year in Hogwarts (~every 2 weeks) and the current rankings will be posted. At the end of the semester, bonus course points will be awarded to each house as follows: 1st Place – 4 Bonus points, 2nd Place – 3 Bonus points, 3rd Place – 2 Bonus points, 4th Place – 1 Bonus point. That is all house members in the 1st place house will receive 4 bonus points added to their final course grade (and so on).

Lectures & Lecture Participation

Lectures will be presented as pre-recorded videos via Canvas. Two lecture sets will be posted each week on Sunday (barring any unforeseeable circumstances). You are expected to watch these videos each week on Monday or Tuesday for Lecture Set 1 and Wednesday or Thursday for Lecture Set 2. Along with the videos, short lecture participation quizzes will be posted on Canvas. The quiz questions will be similar to the questions posed in the videos and all answers will be available in the lecture materials. You must complete these by 11:59PM ET (Indiana Time) on Tuesday (for Lecture Set 1) and 11:59PM ET (Indiana Time) on Thursday (for Lecture Set 2). Your score on these quizzes will make up your lecture participation score.

Each student will have their five lowest lecture participation scores dropped. Because each student gets five dropped scores, I do not make a distinction between excused and unexcused missed quizzes. If you miss due to illness, oversleeping, travel, emergency, or do not complete a lecture participation quiz for any reason, participation for that lecture quiz will be recorded as a zero.

The asynchronous flexibility of this course should hopefully aid in avoiding conflicts with religious holidays. However, students who need accommodations for observance of religious holidays must contact me as indicated in the [academic bulletin](#). All requests for accommodations must be made before Monday, February 15th.

Workshops & Workshop Participation

On Fridays, I will hold a workshop from 9:00-9:50AM ET (Indiana Time) via Zoom. **You may choose to attend these workshops live or watch the recording via Canvas.** These workshops will be used to work through any confusion from the pre-recorded lectures and to explore software-based techniques or

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performing statistical techniques. Each workshop will have a quiz associated with it that will need to be completed by 12:00PM on Sunday. These quizzes will be graded for completion (not for accuracy). Your completion of these quizzes will make up your workshop participation credit.

There will be 11 of these Friday morning workshops and each student will have their (1) lowest workshop participation score dropped. As with the lecture participation, there is no distinction between excused/unexcused misses of workshop participation quizzes. If you miss a workshop participation quiz for any reason, participation for that workshop quiz will be recorded as a zero.

Homework

Homework assignments will be made available for viewing each Sunday (along with the lecture). The homework assignments will focus on the concepts and software that you learned about that week. You must complete each homework assignment on your own (no collaborating with classmates/housemates) and submit your work by 11:59PM on the day indicated on the course schedule. **Homework due dates vary slightly to accommodate Wellness Days/Exams: #1-7 are due on Fridays, and #8-10 are due on Mondays.** The specific due dates for each are listed on the course schedule and are also listed in Canvas.

There will be 10 homework assignments (9 worksheets, 1 Review Quiz) and each student will have their two lowest homework assignments dropped. **Students planning to use a token to turn a homework assignment in late will need to contact us by 5:00PM ET (Indiana time) on the due date of that particular assignment (no exceptions). Assignments turned in late with a token will be accepted NO LATER than one full week after the original deadline (no exceptions). Late homework will not be accepted without a token, if 2 tokens have already been redeemed to turn homework in late, and/or if e-mails requesting to use a token are received after 5:00PM ET (Indiana time) on the due date of a particular assignment.**

Exams

There will be two sets of exams throughout your time at Hogwarts, or “semester”, the **Ordinary Wizarding Levels (OWLs)** and the **Nastily Exhausting Wizarding Tests (NEWTs)**. Exams will open at 12:00PM ET (Indiana time) on the Tuesday of the week they are being given and close at 11:59PM ET (Indiana time) on the Friday of the week they are being given. Thus, OWLs will open on Tuesday March 2nd and close on Friday March 5th; NEWTs will open on Tuesday April 27th and close on Friday April 30th. Each exam will cover and test 1) your understanding of the conceptual basis of statistics and 2) your mastery of the concepts you have learned by analyzing new sets of data using the software and tools we have studied. Exams are open-book and you are free to discuss the content and concepts with your classmates/housemates, **but you must do your own work and the answers you submit must be your own.** Each exam will focus primarily on the new material learned since the previous exam, but questions about older material may be included as well. There will not be a final examination for this class.

If you have a scheduling conflict that will interfere with turning in a homework assignment or taking an exam at the scheduled time, you must let me know as soon as possible. With the exception of extreme and unforeseen circumstances, contacting me the day (or even worse, after) an assignment or exam is due will result in a zero on the work.

Tokens

Completion of House Cup Activities will help you (as an individual) earn Course Tokens. Completing 3 House Cup Activities will earn you 1 token and you can earn up to 3 tokens over the course of the semester. To redeem tokens you must email BOTH Remus and Me. Tokens can be redeemed for:

- Turning in 1 Homework Assignment late (1 token)
 - o **Please note: Students planning to use a token to turn a homework assignment in late will need to contact us by 5:00PM ET (Indiana time) on the due date of that particular assignment (no exceptions). Token redemption requests received after that time will not be granted. Assignments turned in late with a token will be accepted NO LATER than one full week after the original deadline (no exceptions). Up to 2 tokens total (2 homework assignments) may be redeemed over the course of the semester.**
- Granting 2 bonus points on 1 homework assignment (1 token)
 - o **Please note: Requests to use a token to be granted 2 bonus points on a homework assignment must be submitted within 2 weeks of grades being released. No exceptions. Only 1 token (1 assignment granted 2 bonus points) may be redeemed over the course of the semester.**
- Granting 2 bonus points on 1 Exam (2 tokens)
 - o **Please note: Requests to use tokens to receive 2 bonus points on OWLs must be submitted within 2 weeks of grades being released. Requests to use tokens to receive 2 bonus points on NEWTs must be submitted by Wednesday May 5 @ 11:59PM. Only 2 tokens (1 exam granted 2 bonus points) may be redeemed over the course of the semester.**

Your final grade is based on your total points earned divided by the total points available in the class. A summary breakdown of the point allotment per assignment group etc. is given in the below table.

Assignment Type	# offered	# dropped	Points Per Assignment	Total Points
Lecture Participation	25	5	10	200
Workshop Participation	11	1	10	100
Homework Assignments	10	2	50	400
Exams (OWLs and NEWTs)	2	0	200	400
Course Total	-	-	-	1100

Grading Scale

A+: 1067 - 1100 pts	A: 1023 - 1066.99 pts	A-: 990 - 1022.99 pts
B+: 957 - 989.99 pts	B: 913 - 956.99 pts	B-: 880 - 912.99 pts
C+: 847 - 879.99 pts	C: 803 - 846.99 pts	C-: 770 - 802.99 pts

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D+: 737 - 769.99 pts	D: 693 - 736.99 pts	D-: 660 – 692.99 pts
F: Below 660 pts		

Student Responsibility

It is your responsibility to double-check your assignment and exam grades – both that the papers themselves were correctly graded and that the scores posted on Canvas match your actual grades. You have two weeks from the time an assignment is returned to the class to address any grading issues. After that, the grades posted on Canvas will be considered final.

Feedback

Do not wait until the end of the semester course evaluations to let me know that I could be doing something better. Tell me as soon as possible so that I can make the class valuable and relevant as we go along. If you have any feedback, good or bad, about the course or how it's being taught, please feel free to send it to me *anonymously* using [this link](#). The feedback goes directly to my IU email address and your name is not associated with it in any way.

Extra Credit?

Beyond bonus points that will be awarded through the House Cup and redemption of individual tokens, one or two extra credit assignments may be provided to the class throughout the semester at the discretion of the instructor. **Individual requests for extra credit assignments will be ignored.** Any extra credit opportunities that are made available will be made available to the entire class.

Academic Honesty

The course is conducted under the University's Ethics Code. Specifically, it is considered cheating if you obtain any kind of information about answers and solutions to the assignments in this course – exams and homework – from any non-intended source or conversely transfer such information to others. It is also considered cheating if you lie to me about an absence relating to a homework, exam, or lecture/workshop participation quiz. The punishment for academic dishonesty will be no less than a zero on the assignment or exam and will likely be **failure of the course**. As per university policy, *all* incidents of academic misconduct must be reported to the Dean of Students office.

Class Recordings

As mentioned, lecture and workshop recordings will be posted to Canvas. You may watch any of the recordings online or download them for off-line viewing on your computer, smartphone, or media player. These recordings are copyrighted by me and provided by me and the University for your personal use. You may not share them, in whole or in part, without my prior written permission. Please see the copyright statement below for the full terms of use.

Statement for Students with Disabilities

Every attempt will be made to accommodate qualified students with disabilities (e.g. mental health, learning, chronic health, physical, hearing, vision neurological, etc.) You must have established your eligibility for support services through the appropriate office that services students with disabilities. Note that services are confidential, may take time to put into place and are not retroactive; Captions and alternate media for print materials may take three or more weeks to get produced. Please contact Disability Services for Students at <http://disabilityservices.indiana.edu> (Links to an external site.) or 812-855-7578 as soon as possible if accommodations are needed. The office is located on the third floor,

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west tower, of the Wells Library, Room W302. Walk-ins are welcome 8 AM to 5 PM, Monday through Friday. You can also locate a variety of campus resources for students and visitors that need assistance at: <http://www.iu.edu/~ada/index.shtml>

Sexual Misconduct and Title IX Policy

As your instructor, one of my responsibilities is to create a positive learning environment for all students. Title IX and IU's Sexual Misconduct Policy prohibit sexual misconduct in any form, including sexual harassment, sexual assault, stalking, and dating and domestic violence. If you have experienced sexual misconduct, or know someone who has, the University can help.

If you are seeking help and would like to speak to someone confidentially, you can make an appointment with:

- The Sexual Assault Crisis Services (SACS) at (812) 855-8900 (counseling services)
- Confidential Victim Advocates (CVA) at (812) 856-2469 (advocacy and advice services)
- IU Health Center at (812) 855-4011 (health and medical services)

It is also important that you know that Title IX and University policy require me to share any information brought to my attention about potential sexual misconduct, with the campus Deputy Title IX Coordinator or IU's Title IX Coordinator. In that event, those individuals will work to ensure that appropriate measures are taken and resources are made available. Protecting student privacy is of utmost concern, and information will only be shared with those that need to know to ensure the University can respond and assist.

I encourage you to visit stopsexualviolence.iu.edu (Links to an external site.) to learn more.

Biased-Based Incident Reporting

Biased-based incident reports can be made by students, faculty, and staff. Any act of discrimination or harassment based on race, ethnicity, religious affiliation, gender, gender identity, sexual orientation or disability can be reported through any of the options:

- 1) email biasincident@indiana.edu or incident@indiana.edu;
- 2) call the Dean of Students Office at (812) 855-8188 or
- 3) use the IU mobile App (m.iu.edu (Links to an external site.)).

Reports can be made anonymously.

Copyright

Copyright Tessa Benson-Greenwald and Indiana University, 2021. All federal and state copyrights in these course materials are reserved by their respective creators. You are authorized to take notes in class and/or record my lectures for your own personal use. You may not make any commercial use of my course materials or profit from them in any way without my prior written permission. In addition to legal sanctions for violations of copyright law, students found to have violated these prohibitions may be subject to University disciplinary action under the [Code of Student Conduct](#) and/or violations of the [University's Technology Acceptable Use Policies](#).

This is an Inclusive Course

In our K300 course, all students are welcome regardless of race/ethnicity, gender identities, gender expressions, sexual orientation, socio-economic status, age, disabilities, religion, regional background, Veteran status, citizenship status, nationality, and other diverse identities that we each bring to class.

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DISCLAIMERS

1) This syllabus is an outline of the course and its policies, which may be changed for reasonable purposes during the semester at the instructor's discretion. You will be notified in class and/or via email if any changes are made to this syllabus, and an updated syllabus will be provided on Canvas.

2) J.K. Rowling, the author of the Harry Potter series, holds some deeply problematic and exclusionary beliefs that have been made public over the past year or so. We actively condemn these statements and views. As an inclusive environment, we welcome and value all.

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Hogwarts Time	Muggle Week		Muggle Date	Description	HW Due
Year 1	1	M	Jan 18	MLK Jr Day	
		W	Jan 20	Introductions	
		F	Jan 22	Levels of Measurement (LoM)	#1
	2	M	Jan 25	Histograms	
		W	Jan 27	Central Tendency	NO HW
		F	Jan 29	Excel Basics; Formulas + Central Tendency	
Year 2	3	M	Feb 1	Variability & Standard Deviation	
		W	Feb 3	Review: LoM, Histograms, CT, Variability	
		F	Feb 5	Excel: Graphs & Histograms	#2
	4	M	Feb 8	Normal Distributions	
		W	Feb 10	Z-Scores Part 1	
		F	Feb 12	Excel: Variability, Plots, and Z Scores	#3
Year 3	5	M	Feb 15	Wellness Day #1	
		W	Feb 17	Z-Scores Part 2	
		F	Feb 19	Excel: Review/Troubleshoot	#4
	6	M	Feb 22	Models & Model Evaluation, Part 1	
		W	Feb 24	Models & Model Evaluation, Part 2	
		F	Feb 26	Simulator: Evaluating Models	#5 (RQ)
Ordinary WIZARDING Levels	7	M	Mar 1	Review for OWLs	
		W	Mar 3	Ordinary WIZARDING Levels	
		F	Mar 5		
Year 4	8	M	Mar 8	The Null Model and p-values: Part I	
		W	Mar 10	The Null Model and p-values: Part II	NO HW
		F	Mar 12	Workshop: Coins and Matching, p-values	
	9	M	Mar 15	Statistical Significance: Part I	
		W	Mar 17	Statistical Significance: Part II	
		F	Mar 19	Workshop: p values & statistical significance	#6
Year 5	10	M	Mar 22	Review: Models, Null Model, Pvalue, Stat Sig	
		W	Mar 24	Wellness Day #2	
		F	Mar 26	Review: Simulators	#7
	11	M	Mar 29	Introduction to the t-test	
		W	Mar 31	Between/Paired Samples t-tests	
		F	Apr 2	Workshop: JASP & t-tests	
Year 6	12	M	Apr 5	ANOVAs Part I	#8
		W	Apr 7	ANOVAs Part II	
		F	Apr 9	Workshop: JASP & ANOVAs	
	13	M	Apr 12	Correlations Part I	#9
		W	Apr 14	Correlations Part II	
		F	Apr 16	Workshop: JASP & Correlations	
Year 7	14	M	Apr 19	Review: t-tests, ANOVAs, Correlations	#10
		W	Apr 21	Start Studying for NEWTs	
		F	Apr 23	Wellness Day #3	
Nastily Exhausting WIZARDING Tests	15	M	April 26	Review for NEWTs	
		W	April 28	Nastily Exhausting WIZARDING Tests	
		F	April 30		

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	Muggle Finals Week		May 3-8	Take deep breaths and relax	
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