Prefix and number: VET_PATH 571
Title: Analysis in Epidemiology
Credit hours: 3
Prerequisites: Algebra
Current semester and year: Spring 2021
Meeting schedule:
Time: Monday 1:00 to 3:00 PM
Place: via Zoom

Instructor and Course Coordinator: Dr. Eric Lofgren
Eric.Lofgren@wsu.edu
Remote office hours by appointment

Course Description: This course will introduce the graduate student to the concepts and basic analytical toolkit of modern observational epidemiology, including both causal and systems reasoning, regression analysis, and mathematical modeling. The student will be able to read and critique epidemiological studies, assess which analytical strategies are appropriate for their research questions, and perform basic statistical analysis using the R programming language. Examples from medical and veterinary literature will be discussed, with infectious disease epidemiology being common but not exclusive.

Required Textbook: There is no required textbook for this course. Potential sources for those interested in a deeper treatment of topics will be provided during lectures.

Other textbooks and resources:

- *Modern Epidemiology, 4th Edition* by Lash, VanderWeele, Haneuse and Rothman
- *Epidemiology by Design* by Westreich
- *Systems Science and Population Health*, El-Sayed and Galea eds.

Course Website: In lieu of Blackboard, material for the course will be available on Github at http://www.github.com/EpiSpring21.

Description of required assignments: Students will be assigned problem sets due the Monday of the following week. Each problem set is worth 10 points, for a total of 50 points. A take home final will also be assigned, due May 7th, 2021 at 11:59 PM PST. This final is worth 25 points. The remaining 25 points will be based on class participation. Each student may solve the problem set on her or his own or may work in groups. The final must be completed individually.

Policy on late assignments: Assignments that are submitted after the beginning of class on Monday will receive one-half of the total graded points (i.e. a maximum of 5 points). A late final will lose 10% off the final grade for each day late it is, beginning May 8th at 12:00 AM.

Grading policy:
96-100 points: A
90-95 points: A-
86-89 points: B+
80-85 points: B
76-79 points: B-
70-75 points: C
< 70 points: F

Assigning Incompletes: University policy (Acad. Reg. #90) states that Incompletes may only be awarded if: "the student is unable to complete their work on time due to circumstances beyond their control".

COVID-19 Incomplete: A recent revision to federal financial aid regulations allows for COVID-19 related Incompletes to hold students harmless for SAP and ease the burden for Financial Aid. In order to implement this, a new grade was created to allow for tracking, the IC, defined as Incomplete COVID-19. Students may be given the IC grade when they indicate the reason for the incomplete is COVID-19 related. Reasons may include child-care responsibilities, caring for self or family member illness, lack of access to technology or internet, death of a family member, housing disruptions related to a COVID-19 move, and other significant life events.

Attendance policy: There is no formal attendance policy, however 25% of your class grade is based on participation – by extension it is difficult to pass without attending and participating in class.

WSU Reasonable Accommodation Statement:
Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist on your home campus. Pullman or WSU Online: 509-335-3417, Washington Building 217; http://accesscenter.wsu.edu, Access.Center@wsu.edu. All students requesting reasonable accommodation must meet with the instructor prior to or during the first week of the course to review all proposed accommodations in relation to course content and requirements. Exceptions to this timeframe will be granted only upon a showing of good cause.

WSU Academic Integrity Statement: Academic integrity is the cornerstone of higher education. As such, all members of the university community share responsibility for maintaining and promoting the principles of integrity in all activities, including academic integrity and honest scholarship. Academic integrity will be strongly enforced in this course. Students who violate WSU's Academic Integrity Policy (identified in Washington Administrative Code (WAC) 504-26-010(3) and -404) will fail the course, will not have the option to withdraw from the course pending an appeal, and will be reported to the Office of Student Conduct.

Cheating includes, but is not limited to, plagiarism and unauthorized collaboration as defined in the Standards of Conduct for Students, WAC 504-26-010(3). You need to read and understand all of the definitions of cheating: http://app.leg.wa.gov/WAC/default.aspx?cite=504-26-010. If you have any questions about what is and is not allowed in this course, you should ask course instructors before proceeding. If you wish to appeal a faculty member's decision relating to academic integrity, please use the form available at https://conduct.wsu.edu/.

Classroom Safety Statement: Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the "Alert, Assess, Act," protocol for all types of emergencies and the "Run, Hide, Fight" response for an active shooter incident. Remain ALERT (through direct observation or emergency notification), ASSESS your specific situation, and ACT in the most appropriate way to assure your own safety (and the safety of others if you are able).
Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the FBI's Run, Hide, Fight video and visit the WSU safety portal.

Lauren's Promise

I will listen and believe you if someone is threatening you.

Lauren McCluskey, a 21-year-old honors student athlete, was murdered on Oct. 22, 2018, by a man she briefly dated on the University of Utah campus. We must all take actions to ensure that this never happens again.

If you are in immediate danger, call 911.

If you are experiencing sexual assault, domestic violence, and stalking, please report it to me and I will connect you to resources or call the National Alternatives to Violence at 877-334-2887 (24-hour crisis hotline).

Any form of sexual harassment or violence will not be excused or tolerated at Washington State University. WSU has instituted procedures to respond to violations of these laws and standards, programs aimed at the prevention of such conduct, and intervention on behalf of the victims.

- National Resources for Domestic Violence, Sexual Assault, and Stalking:
- National Domestic Violence Hotline: 1-800-799-SAFE
  and https://www.thehotline.org/help/
- RAINN (Rape, Abuse & Incest National Network): 1-800-656-HOPE (4673)
  and https://www.rainn.org/
- Victim Connect Resource Center: 1-855-484-2846 and https://victimconnect.org/
- Love is Respect – National Dating Abuse Hotline: 1 (866) 331- 9474
  - Text: 22522 and https://www.loveisrespect.org/
- Anti-Violence Project Hotline: 212-714-1141 and https://avp.org/get-help/

Week-to-week course outline:

Date	Topic
1/25	Housekeeping and Administration What Is Epidemiology? Measures of Occurrence
2/1	Measures of Association, Contingency Tables, Causal Relationships
2/15	PRESIDENT'S DAY – NO CLASS
2/22	Study Designs – An Overview
3/1	Case-Control Data and Logistic Regression
3/8	Cohort Data, Binomial Regression, Missing Data and Non-Convergence
3/15	Cohort Data II: Time to Event Data and Survival Analysis
3/22	Alternative Adjustment Strategies
3/29	Systems Models and Systems Reasoning
4/5	Deterministic Compartmental Models
4/12	Stochastic Compartmental Models
4/19	Network and Agent-based Models
4/26	Epidemiology and Machine Learning
5/7	**FINAL EXAM DUE**