Curriculum Vitae: Jennet Baumbach, M.A., Ph.D. (ABD)

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Professional Summary

I am a multidisciplinary researcher, educator, and data analyst with expertise in psychology, neuroscience, pain science, and statistical modeling. I have over a decade of experience managing large and complex projects with little oversight. I am comfortable thinking autonomously and making decisions independently to drive results without direction. My research has led to over 18 peer-reviewed publications, with more under review.

Beyond research, I am a passionate and effective educator with over five years of university-level teaching experience. I have designed and delivered engaging, inquiry-based curricula in statistics, research methods, and R programming. I specialize in making complex analytical concepts intuitive and accessible to learners across disciplines.

My technical strengths include R, LaTeX, mixed modeling, qualitative thematic coding, data visualization, and reproducible research pipelines. I have worked extensively with large-scale healthcare datasets, as well as lab-based behavioral and neurobiological data. I also bring experience in navigating ethics applications, survey design, and manuscript development for both academic and applied audiences.

As I complete my doctoral training, I am **seeking opportunities that leverage my strengths in research design, data interpretation, and science communication**. I am open to discussing contract, part-time, or full-time work arrangements.

Example Projects

1 **An Academic Project**

2024; *A single exposure to the predator odor 2,4,5-trimethylthiazoline causes long-lasting affective behavioral changes in female mice: Modulation by kappa opioid receptor signaling*

- Published findings in a academic journal. (LINK)
- Posted a Data book of code to generate figures and reproduce statistical analyses. (LINK)

2 **Teaching Materials**

2024; *Third year research methods class - computational project*

- Prepared reproducible teaching materials to generate, analyze, and visualize fictitious data. (LINK)

2024; *Second year Statistics for psychology - Tutorial materials*

- Prepared step-by-step walkthrough of the computational steps to solve the weekly tutorial problem, which in this example required repeated measures ANOVA. (LINK)

3 **Statistics Review Materials**

2025; *Generated for a video series to help students reinforce key statistics concepts in collaboration with the University of Toronto Department of Statistics.*

-Generated interactive content to help students understand the conceptual and mathematical bases of covariance and correlation. (LINK)

Professional Work Experience

2024 – Present

Research Associate, University of Western Ontario (London).
- Designs quantitative and qualitative study materials.
- Liaises with the Research Ethics Board and Hospital ethics teams.
- Conducts data analysis on large health-related datasets.
- Extracts insights, creates data visualizations, prepares manuscripts for submission to peer-reviewed journals.

Research Assistant, University of Toronto, Department of Statistics (St. George campus).
- Designs content for video series aimed to help students in the department of statistics connect theoretical concepts to computational approaches to data analysis.
- Generates data visualizations, interactive tools, and scripts.

2019 – 2023

Chief Presiding Officer, University of Toronto (Mississauga).
- Distributed, oversaw, collected, counted, and accounted for undergraduate final exams (500+ students / exam room).
- Handled all student indiscretions during the exam in accordance with University of Toronto policy.
- Communicated changes in tests to students via announcements and discussions with the exams office.

2017 – Present

University Educator, University of Toronto (Mississauga) & Brock University.
- Taught courses, led tutorials, and facilitated workshops focused on data analysis and statistical modeling.
- Generated original course content for undergraduate and graduate-level audiences.

University Education

2019 – 2025

Ph.D. Psychology, University of Toronto. Anticipated date of defence: 2025.
Thesis: *A history of trauma enhances behavioural responses to subsequent painful and non-painful threats in mice*
- Developed research questions and designed / executed experiments.
- Generated data analysis pipelines using reproducible (code-based) approaches to increase analysis quality and efficiency.
- Successfully coordinated collaborative research efforts.
- Published four first-author papers on thesis findings.

2017 – 2019

M.A. Psychology, Brock University Specialty: Behavioural Neuroscience
Thesis: *Tamoxifen or estradiol limited to the induction phase of nicotine sensitization enhances the expression of locomotor sensitization in ovariectomized and in intact female rats*
- Presented original data at local and international conferences.
- Published two first-author peer-reviewed papers to disseminate thesis findings.

2012 – 2017

hB.A. Psychology, Brock University. Graduated with first-class standing.
Thesis: *Individual differences in exploratory behaviour predict vulnerability to social instability stress in male rats*
- Conducted behavioural experiments and data analysis independently.
- Published results in a peer-reviewed journal as co-first author.

Research Contributions

Summary: I have contributed to 18 published peer-reviewed papers (+ 2 more under review / in revision). I am well-versed in the entirety of the research / publication cycle including hypothesis generation, research design, experimental execution, data analysis, manuscript writing, generating publication-ready figures, formatting submissions as per journal specifications, and responding to peer reviews.

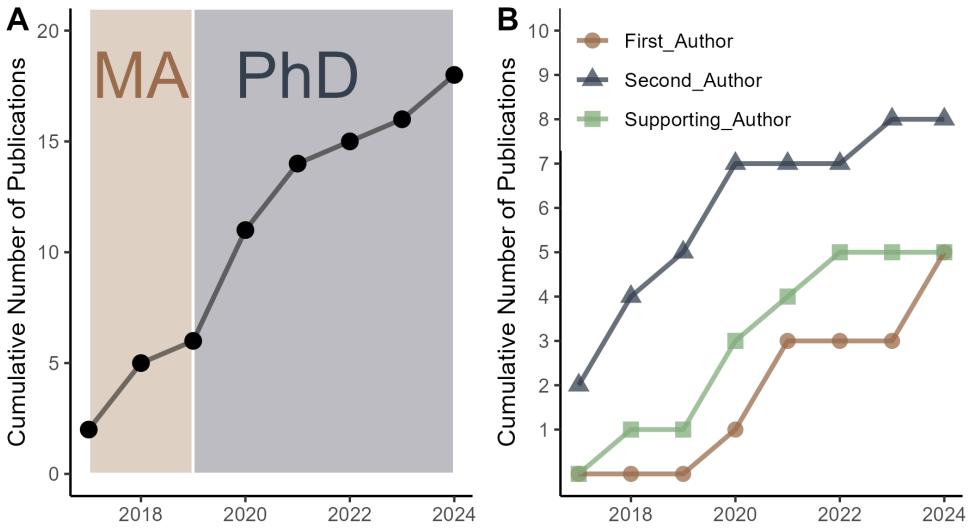

Figure 1. (A) Total peer-reviewed publications across time. (B) Peer-reviewed publications broken down by position in the author list.

Publications Under Review

1. **J. L. Baumbach**, C.Y.Y. Mui, A.M. Lionetti, and L. J. Martin, "Corticosterone Regulates the Balance Between Freezing and Rearing in Defensive Responses to Predator Threat," Manuscript under review at *Psychopharmacology* (2025).

2. **J. L. Baumbach**, C.Y.Y. Mui, A.M. Lionetti, and L. J. Martin, "A history of pain enhances affective and sensory responses to predator threat via sensitization of corticosterone release through TRPA1 receptor signaling," Manuscript accepted at *Current Biology*; Submission ID: D-25-00300 (2025).

Peer-Reviewed Journal Articles (DOIs are linked)

1. **J. L. Baumbach**, A. M. Leonetti, and L. J. Martin, "Inflammatory injury induces pain sensitization that is expressed beyond the site of injury in male (and not in female) mice," en, *Behavioural Brain Research*, vol. 475, p. 115 215, Oct. 2024, ISSN: 01664328. DOI: 10.1016/j.bbr.2024.115215. (visited on 09/04/2024).

2. **J. L. Baumbach**, C. Y. Mui, F. Tuz Zahra, and L. J. Martin, "A single exposure to the predator odor 2,4,5-trimethylthiazoline causes long-lasting affective behavioral changes in female mice: Modulation by kappa opioid receptor signaling," en, *Pharmacology Biochemistry and Behavior*, vol. 242, p. 173 822, Sep. 2024, ISSN: 00913057. DOI: 10.1016/j.pbb.2024.173822. (visited on 09/04/2024).

3. S. Darvish-Ghane, **J. Baumbach**, and L. J. Martin, "Influence of Inflammatory Pain and Dopamine on Synaptic Transmission in the Mouse ACC," en, *International Journal of Molecular Sciences*, vol. 24, no. 13, p. 11 113, Jul. 2023, ISSN: 1422-0067. DOI: 10.3390/ijms241311113. (visited on 04/15/2024).

4 R. A. Herlehy, S. Lim, S. H. Murray, **J. L. Baumbach**, M. Van Wingerden, and C. M. McCormick, "Effect of social instability stress in adolescence or adulthood on sensitivity to sucrose concentration in a social context in male and female Long-Evans rats," en, *Developmental Psychobiology*, vol. 64, no. 6, e22293, Sep. 2022, ISSN: 0012-1630, 1098-2302. DOI: 10.1002/dev.22293. (visited on 04/15/2024).

5 **J. Baumbach** and C. McCormick, "Nicotine sensitization (part 1): Estradiol or tamoxifen is required during the induction phase and not the expression phase to enable locomotor sensitization to nicotine in female rats," *Psychopharmacology*, vol. 238, no. 2, 2021, ISSN: 14322072. DOI: 10.1007/s00213-020-05685-8.

6 **J. Baumbach** and C. McCormick, "Nicotine sensitization (Part 2): Time spent in the centre of an open field sensitizes to repeated nicotine into the drug-free state in female rats," *Psychopharmacology*, vol. 238, no. 2, 2021, ISSN: 14322072. DOI: 10.1007/s00213-020-05686-7.

7 G. Stefanelli, C. Makowski, M. Brimble, *et al.*, "The histone chaperone Anp32e regulates memory formation, transcription, and dendritic morphology by regulating steady-state H2A.Z binding in neurons," *Cell Reports*, vol. 36, no. 7, 2021, ISSN: 22111247. DOI: 10.1016/j.celrep.2021.109551.

8 **J. L. Baumbach** and I. B. Zovkic, "Hormone-epigenome interactions in behavioural regulation," *Hormones and Behavior*, vol. 118, no. November 2019, p. 104 680, 2020, Publisher: Elsevier, ISSN: 10956867. DOI: 10.1016/j.yhbeh.2020.104680.

9 M. Marcolin, **J. Baumbach**, T. Hodges, and C. McCormick, "The effects of social instability stress and subsequent ethanol consumption in adolescence on brain and behavioral development in male rats," *Alcohol*, vol. 82, 2020, ISSN: 18736823. DOI: 10.1016/j.alcohol.2019.08.003.

10 C. McCormick, K. Smith, **J. Baumbach**, *et al.*, "Adolescent social instability stress leads to immediate and lasting sex-specific changes in the neuroendocrine-immune-gut axis in rats," *Hormones and Behavior*, vol. 126, 2020, ISSN: 10956867. DOI: 10.1016/j.yhbeh.2020.104845.

11 F. Ramzan, **J. Baumbach**, A. D. Monks, and I. B. Zovkic, "Histone H2A.Z is required for androgen receptor-mediated effects on fear memory," *Neurobiology of Learning and Memory*, vol. 175, no. September, p. 107 311, 2020, Publisher: Elsevier, ISSN: 10959564. DOI: 10.1016/j.nlm.2020.107311.

12 F. Ramzan, S. D. Creighton, M. Hall, *et al.*, "Sex-specific effects of the histone variant H2A.Z on fear memory, stress-enhanced fear learning and hypersensitivity to pain," *Scientific Reports*, vol. 10, no. 1, pp. 1–17, 2020, Publisher: Nature Publishing Group UK ISBN: 0123456789, ISSN: 20452322. DOI: 10.1038/s41598-020-71229-x.

13 J. Simone, **J. Baumbach**, J. McPherson, and C. McCormick, "Adolescent CB1 receptor antagonism influences subsequent social interactions and neural activity in female rats," *International Journal of Developmental Neuroscience*, vol. 80, no. 4, 2020, ISSN: 1873474X. DOI: 10.1002/jdn.10028.

14 M. Marcolin, T. Hodges, **J. Baumbach**, and C. McCormick, "Adolescent social stress and social context influence the intake of ethanol and sucrose in male rats soon and long after the stress exposures," *Developmental Psychobiology*, vol. 61, no. 1, 2019, ISSN: 10982302. DOI: 10.1002/dev.21800.

15 T. Hodges, **J. Baumbach**, and C. McCormick, "Predictors of social instability stress effects on social interaction and anxiety in adolescent male rats," *Developmental Psychobiology*, vol. 60, no. 6, 2018, ISSN: 10982302. DOI: 10.1002/dev.21626.

16 J. Simone, **J. Baumbach**, and C. McCormick, "Effects of CB1 receptor antagonism and stress exposures in adolescence on socioemotional behaviours, neuroendocrine stress responses, and expression of relevant proteins in the hippocampus and prefrontal cortex in rats," *Neuropharmacology*, vol. 128, 2018, ISSN: 18737064. DOI: 10.1016/j.neuropharm.2017.10.029.

17 J. Simone, **J. Baumbach**, and C. McCormick, "Sex-specific effects of CB1 receptor antagonism and stress in adolescence on anxiety, corticosterone concentrations, and contextual fear in adulthood in rats," *International Journal of Developmental Neuroscience*, vol. 69, 2018, ISSN: 1873474X. DOI: 10.1016/j.ijdevneu.2018.07.011.

18 T. Hodges, **J. Baumbach**, M. Marcolin, R. Bredewold, A. Veenema, and C. McCormick, "Social instability stress in adolescent male rats reduces social interaction and social recognition performance and increases oxytocin receptor binding," *Neuroscience*, vol. 359, 2017, ISSN: 18737544. DOI: 10.1016/j.neuroscience.2017.07.032.

Technical Skills

Research Design	Authoritative knowledge about the mechanics, ethics, and logistics of developing research programs to study human and animal behaviour. Extensive experience writing protocols, liasing with ethics boards, and envisioning project direction
Survey Generation	Experienced in designing, validating, and deploying survey materials using online platforms (e.g., Qualtrics, REDCap).
Data Analysis	Well-versed in statistical theory and computational approaches to data analysis. Areas of expertise include general linear modeling, structural equation modeling, A/B hypothesis testing, multi-level modeling, Bayesian analysis, and qualitative methods. Excels at data visualization, storytelling, and meaningful data inference.
Coding	Highly skilled at generating reproducible dynamic documents (written documents, slideshows, conference presentations) using RMarkdown and LaTeX-based approaches for typesetting and publishing. Skilled at generating readable and DRY code to analyze statistics in Rstudio and SPSS.
Knowledge Dissemination	Experienced in generating manuscripts for peer review in different subfields of psychology, neuroscience, and healthcare. Highly skilled at generating posters and presentations for professional conferences using code-based approaches. Advanced ability to tailor all forms to communication to audiences with varying levels of technical backgrounds.
Behavioral Assays	Highly proficient in sterile surgical techniques including stereotaxic craniotomy, ovariectomy and gonadectomy. Well-versed in conducting and interpreting results from a wide range of behavioural assays.
Molecular Assays	Extraction of specific brain regions for quantification; protein isolation; RNA extraction; quantitative real-time PCR (qPCR); western blotting; immunohistochemistry; competitive ELISA assays; staining and quantification of vaginal smears for estrus phase analysis; embryonic brain dissections; neuronal cell culture.
Electrophysiological Assays	Knowledgeable about construction and optimization of custom electrophysiology rigs; maintenance of live tissue sections for recordings. Expert-level ability to conduct single-cell patch-clamp recordings in live brain slices.

Competitive Awards

2023 – 2025 **Women in Science and Mathematics Fellowship**
$11,000; *Awarded on behalf of General Motors.*

2022 – 2023 **Pain Scientist Award**
$12,500; *Awarded on behalf of the University of Toronto Center for the Study of Pain.*

2020 – 2023 **NSERC Post-Graduate Fellowship**
$63,000; *Awarded on behalf of the Canadian Government.*

2022 **Canadian Pain Society - Best Poster Presentation**
$150; *Awarded at the CPS Annual meeting - Selected from >250 posters.*

2019 – 2023 **Faculty of Arts and Science Top Doctoral Fellowship**
$92,000; *Awarded on behalf of the University of Toronto Department of Arts & Sciences.*

2019 – 2020 **Domestic Graduate Acceptance Award**
$2,500; *Awarded on behalf of the University of Toronto Faculty of Graduate Studies.*

2018 – 2019 **Ontario Graduate Scholarship**
$15,000; *Awarded on behalf of the Government of Ontario.*

2017 – 2018 **Dean of Graduate Studies Award**
$4,500; *Awarded on behalf of Brock University Faculty of Graduate Studies.*

2015 – 2016 **Match of Minds Fellowship**
$11,000; *Awarded on behalf of the Psychology Department of Brock University*

Summary: My graduate school work was supported by a combination of institutional, provincial, and federal funding. I was awarded competitive funding for every semester that I spent enrolled in graduate school (2018 - present).

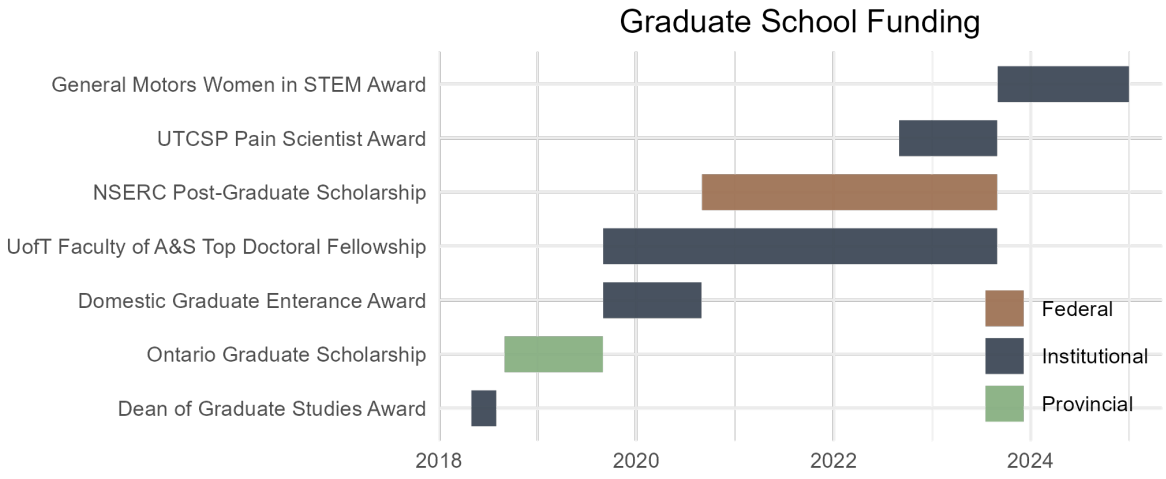

Figure 2. Visual representation of graduate school funding won over time. All funding was awarded based on written research proposals.

Univeristy Teaching Experience

2023 – Present

Lecturer. University of Toronto (Mississauga & Toronto, Ontario).
- Determined course format, developed original course content, created evaluative materials (assignments, midterms, exam).
- Delivered engaging lectures about statistics and research methods.
- Co-ordinated teams of three teaching assistants.

Tutorial Leader. University of Toronto (Mississauga & Toronto, Ontario).
- Guided graduate / undergraduate students through solving statistical problems.
- Explained the mathematical and theoretical bases of t-tests, ANOVA, regression, etc.
- Coached students on how to interpret the results form their statistical analyses.

2020 – Present

Writing TA. University of Toronto (Mississauga, Ontario).
- Provided detailed feedback to students about their essay writing and offered suggestions for improvement.

2019 – Present

Grading TA. University of Toronto (Mississauga & Toronto, Ontario).
- Assessed hundreds of tests / assignments submissions under tight deadlines.
- Generated organized grade files to track student marks across the semester.

2017 – 2019

Lab Demonstrator. Brock University (St. Catharine's, Ontario).
- Led students through various laboratory experiments including monitoring of physiological responses after caffeine intake and gross dissections of sheep brains.
- Taught statistical analysis to interpret and visualize data collected during lab sessions.

Seminar Leader. Brock University (St. Catharine's, Ontario).
- Fostered and encouraged a respectful atmosphere where students felt comfortable discussing conflicting viewpoints in a civil, academic manner.

Summary: My teaching work involves a variety of roles for many different courses. I am comfortable teaching large and small groups both in-person and in virtual environments.

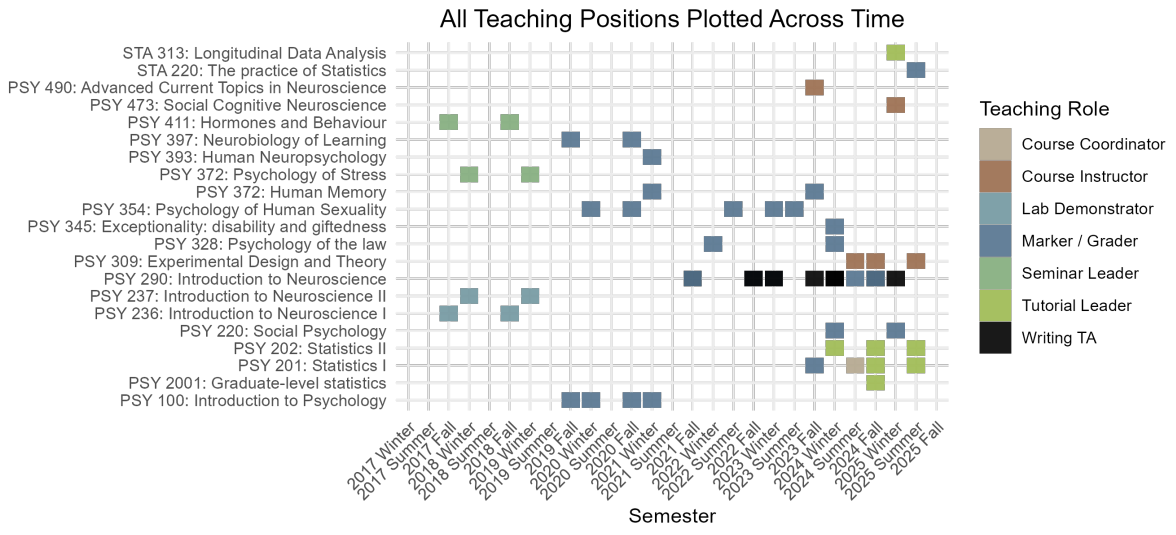

Figure 3. All teaching positions plotted across time and colour-coded by teaching role.

Example Course Evaluations

7. Please comment on the overall quality of the instruction in this course.

Comments
The instruction was clear and Jennet greatly encouraged student participation. The assignments and her lectures encouraged us to think more deeply about the difference between results and author interpretations when engaging with journal articles. I think this is a very important skill and it is good that she focused on it.
Jennet is an incredible course instructor. She takes the time to explain every intricacy, so that the entire class can understand the complex subjects we are discussing.
One of the best instruction I have ever gotten. UTM should look into more seminar courses as this course was very intellectually stimulating and helped me get a better understanding for the field of neuroscience. Courses like this encourage thinking and ideas!!! Super glad I took this course and would highly recommend to anyone! I really hope more students get to have an experience like this with an instructor as good as Jennet! I genuinely look at scientific articles in a more critical way now and feel like I have grown as a student because of this course! My instructor was a 5 star 10/10 and deserves tenure !!
Professor Jennet made the course incredibly interesting and fun to attend; the structure of how she conducted it, how she encouraged and facilitated discussion in the class, and provided help in office hours and breaks during lecture was incredibly helpful.
I think Jennet is a great instructor and I think this is because of how passionate she is about neuroscience. It's always so endearing to be taught by someone who loves what they're doing. I really wish we had more of these seminar/discussion–based courses. They are so much more engaging and they allow students to really express what they've learned. I think I would've really enjoyed more of my university life with more seminar classes lol. I just get so socially anxious participating in a giant lecture hall, y'know?
Very interesting lectures, amazing quality course where I learned a lot of useful knowledge.
I found the format of the course to have been very captivating. It was unique to all other class formats taken in my undergrad and I felt it provide a great opportunity for me to become comfortable with having thoughtful discussions with my peers and driving me to construct more meaningful questions on different subjects.
The course instructor provided a very welcoming environment. Speaking up in seminars when the class size is small is challenging for me, but her warm and nurturing demeanor made it easier. She was also very flexible with her hours to help students out outside class and office hours which was extremely helpful. In addition to being helpful with course materials and presentations, she provided additional help with graduate applications and offers good advice that i may not have necessarily understood.

8. Please comment on any assistance that was available to support your learning in this course.

Comments
There were office hours and Jennet encouraged questions that needed clarification before moving on with class content during lectures. She also provided links to articles that spoke more about concepts covered in class just in case people were interested to learn more
Any time you need help with course content, Jennet was available and more than willing to explain. Additionally, Jennet coached us through many other subjects that were stressful in our general scholastic life, such as grad school applications.
My professor was super enthusiastic to help in office hours and through email with anything. She always created a safe learning space and encouraged discussion!
Professor Jennet was available 24/7 over email and was incredibly welcoming during office hours and encouraged reaching out whenever we felt stuck or had any questions.
Office hours, email.
Answered all questions very clearly and in–depth!
Jennett provided a variety of material that was not only conducive to success in the course material but also very useful for further endeavours in undergrad and graduate work.
She was very flexible and helpful when I came to her for help regarding course papers, assignments, and test help.

References

References available upon request.