

Syllabus

We will have **individual weekly meetings** (30-60 minutes/week, Taylor Science Center, room 3058) to discuss your individual senior research project. Please contact Professor Yeung to arrange a time to schedule these meetings.

Professor: Lok-Kin Yeung

Email: lyeung@hamilton.edu

Office Hours: Tuesdays 11am – noon, 1pm – 2pm, and Wednesdays, 10-11am, 3-4pm (Taylor Science Center, room 3058) or by appointment (via email)

Feel free to email me if you have any questions at any time. I will do my best to respond to email in a timely fashion during working hours (Monday - Friday, 9am – 5 pm, excluding holidays); note that I may not necessarily see your email until the next working day if you contact me in the evenings or over the weekend. Please include “Senior Project” in the subject line if your email is about this class.

Course Details

Course Materials (available at Burke Library)

- American Psychological Association (2020). *Publication Manual of the American Psychological Association* (7th edition). American Psychological Association.
- Silva, P.J. (2014) *Write It Up: Practical Strategies for Writing and Publishing Journal Articles*. American Psychological Association.

Course Description

The senior project is the capstone experience of your neuroscience major. You will be taking the knowledge and tools you’ve learned over the past three years and putting them to use in conducting your own research study. During this semester, you will complete all the stages of a research project, including conducting a literature review, proposing a novel study, collecting and analyzing research data. At the end of the semester, you will present your research study as 1) **an APA-style research paper**, and 2) **an oral presentation**. These correspond to the primary ways that scientists share their research: through peer-reviewed journal articles, and through conference presentations.

Course Expectations

Unlike other courses you have taken at Hamilton, you are expected to take on a much more active role in the direction and progress of your senior research project. Professor Yeung will provide individualized advice, help you when you run into problems that you might not be able to resolve, and suggest resources that you can use, but ultimately you are responsible for your senior research project. To make adequate progress, **you should plan to dedicate around 10 hours/week**, in addition to the meetings we will be having. You are expected to arrive on time for all meetings and be prepared to actively participate. Please notify me of any absences ahead of time, as far as possible.

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Because of the nature of this class, you will be expected to check your email on a regular basis. Class materials may also be posted to Blackboard. To facilitate quicker feedback on your manuscript and your oral presentations, you will store and work on those materials in a Google Drive folder shared with Dr. Yeung (but not necessarily other students without your consent).

Course Goals

This course has been developed to support your progress in achieving Hamilton's educational goals (www.hamilton.edu/academics/catalogue/educational-goals-and-curriculum) that include but are not limited to:

Intellectual Curiosity and Flexibility. Selection of material and design within project context; exploration and evaluation of background literature; approach to an unanswered question and design; selection of stimuli; writing and design revisions.

Analytic Discernment. Synthesizing and critiquing primary research; developing hypotheses to address an unanswered question; (possibly conducting and) interpreting quantitative analyses.

Aesthetic Discernment. Considered creation, and peer review, of figures and presentation aids to effectively communicate scientific information.

Disciplinary Practice. Independent study proposal; possible implementation of design (e.g., programming, stimulus creation, IRB application, data analysis and interpretation, data collection); APA style written manuscript; empirical presentation to scientific community.

Creativity. Study proposal topic; background literature exploration; approach to an unanswered question and design; communication of material in manuscript and presentation (e.g., titles, motivating empirical research, representation of data and stimuli).

Communication and Expression. Presenting to peers in small group format; discussion with peers and faculty research advisor; writing and revision; providing peer review; presentation to scientific community; fielding of questions.

Understanding of Cultural Diversity. Interacting responsibly and respectfully with peers, faculty research advisor and possibly participants; as applicable, considering the socio-cultural implications of research; consideration of empirical research participant population(s).

Ethical, Informed and Engaged Citizenship. Completion of CITI certification in responsible human subject research; adherence to and possible preparation of local IRB application; consideration of empirical research participant population(s); responsible and respectful interaction with research participants.

Course Structure and Grading

The main goal of this course is for you to conduct an independent research project. Weekly group meetings will cover topics of general importance, while individual weekly meetings will focus on topics specific to your individual project. You will be responsible for writing an APA-style report, and making a final presentation; all the assignments in this course are essentially stepping stones to those goals. Your grade will be determined as follows:

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<u>Assignment</u>	<u>% of Grade</u>	<u>Points</u>
Annotated Bibliography	10%	5 x 2%
Manuscript: Introduction	17.5%	1 x 17.5%
Manuscript: Methods	15%	1 x 15%
Manuscript: Results	15%	1 x 15%
Manuscript: Discussion	17.5%	1 x 17.5%
Practice Presentation	5%	2 x 2.5%
Final Presentation	20%	1 x 10%
Total	100%	

Grading Scheme

<u>Percentage</u>	<u>Grade</u>	<u>Percentage</u>	<u>Grade</u>
98-100	A+	78-80	C+
94-97	A	74-77	C
91-93	A-	71-73	C-
88-90	B+	68-70	D+
84-87	B	64-67	D
81-83	B-	61-63	D-
		≤ 60	F

Annotated Bibliography

You are expected to submit 5 annotated bibliographies throughout the semester. Each annotated bibliography should contain 5 APA-style references to relevant peer-reviewed articles that are relevant to your research project, along with a summary of each article and information from those articles which will be relevant to your manuscript. You will have a total of 25 relevant references which will be useful for writing up your manuscript.

Final Manuscript

By the end of the semester, you will be expected to have completed an APA-formatted manuscript, including Introduction, Methods, Results and Discussion sections, along with a title page, abstract, references, and relevant tables/figures. You will complete draft copies of each of the four major sections; then you will be asked to produce a revised version of each section. Further revisions (along with the title page, abstract and references) are expected for the final manuscript. Your writing will be evaluated holistically: particular emphasis should be placed on clarity of your writing, the understandability of the ideas you are trying to convey, and the strength of the arguments you advance. Note that style (e.g. adherence to APA format, grammar and spelling) will also be assessed.

Final Presentation

You will be asked to give a brief presentation of your project to the department on the afternoon of May 6th. This presentation should cover the four sections of your manuscript: it should explain what questions we are asking (and what do we need to know to understand why we are asking those questions), what

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experimental protocols did we use, what results did we find, and what is the meaning of our findings. You will also be expected to field questions from the audience about your work.

Course Policies

Please refer to the Hamilton College student handbook for general rules and expectations not covered here: www.hamilton.edu/student-handbook.

Academic Integrity

All students are expected to be familiar with and follow the Hamilton College Honor Code (<http://www.hamilton.edu/student-handbook/studentconduct/honor-code>). Any instance of academic dishonesty is unacceptable and will be referred to the Honor Court. If you have any doubts, please ask me before engaging in questionable behavior. As the purpose of this class is to give you practical experience in conducting and writing up a research project, **the use of generative language models, such as ChatGPT, is strictly prohibited** (including use for clarity and grammar). If you feel like you are pressed for time, please talk to Professor Yeung first about adjustments to deadlines or how to catch up, instead of using generative AI.

Attendance

You are expected to arrive on time for all meetings and to be prepared to actively and respectfully participate. Sharing your comments, questions, ideas, and thoughts is highly encouraged. As we are only meeting a few times every week, you are expected to attend every class as far as possible; missing class will make it difficult to succeed because you will not participate in the activities designed to support and enhance your learning. There are legitimate reasons to miss class (e.g. illness), and if you have one, I would appreciate it if you told me (beforehand if possible). Per Hamilton guidelines, students who will be absent from class for medical or family emergencies should notify the Office of the Dean of Students and all course instructors as soon as possible. Please notify me in advance and/or as soon as possible regarding absences on the final presentation day. I trust that you will request special arrangements with honesty and integrity, but I may ask you to provide documentation for certain absences.

Incompletes

Only students who are prevented from completing the course due to special circumstances beyond their control (e.g., illness, accident) are eligible for an incomplete. The Committee on Academic Standing must grant approval for an incomplete grade. The work must be completed within six weeks of the end of the course, or the grade will automatically be converted to an F. See the Hamilton College catalogue for details.

Inclusivity and Respect for Others

Every student in this classroom, regardless of personal history or identity categories, is a valued member of this group, and should be treated with respect. Your experiences are valuable and important, and you should feel free to share them as they become relevant to our class. No student is ever expected or believed to speak for all members of a group. In this classroom, you have the right to determine your own identity. You have the right to be called by whatever name you wish, and for that name to be pronounced correctly. You have the right to be referred to by whatever pronouns you wish. You have the

right to adjust those things at any point in your education. If you find there are aspects of course instruction, subject matter, or class environment that result in barriers to your inclusion, please contact me privately without fear of reprisal.

Religious Observances

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please set up a meeting with me before the end of the second week of the term to discuss appropriate accommodation.

Support and Assistance

Students with Special Needs

I encourage anyone with a documented disability of any kind to speak with me regarding any necessary accommodations. I am more than happy to make changes to the way I am teaching so that you can fully participate in class, but it may take a little planning, so be sure to talk to me as early as possible (ideally during the first two weeks of the semester). All conversations will remain confidential. You should also contact Dean Allen Harrison (aharriso@hamilton.edu, 315-859-4021) as he coordinates services for students with disabilities.

Academic Resources

As the goal of this course is to conduct a research study, analyze the data, write up a research paper based on your findings, and give an oral presentation about your research, I heavily encourage you to work with all three resource centers on campus that support each portion of your research project.

- The **Nesbitt-Johnson Writing Center** (<http://www.hamilton.edu/writing/about-the-writingcenter>) will be helpful for all aspects of the writing process (which spans much of the semester). I would advise you to visit them frequently during the semester to get feedback on each element of your research paper as you are working on them.
- The **Quantitative and Symbolic Reasoning Center** (<http://www.hamilton.edu/qsr>) will be particularly helpful with designing your experiments, planning and conducting your data analysis, and reporting your results. I would advise you to consult with them as often as necessary throughout this process.
- The **Oral Communication Center** (<http://www.hamilton.edu/OralCommunication>) will be very helpful as you prepare for the final presentation. I would advise you to schedule appointments to practice and receive feedback on your presentation in addition to the practice presentation we will be doing in class.

Note that these centers can get very busy at peak times of the semester (particularly towards the end of the semester). Please make sure you make appointments well in advance to make sure you can be seen in time, and early enough so that you have time to implement the feedback that they can give you!

Conducting a research study can be a mentally taxing activity, especially as we spend much of the time working on our own while dealing with many uncertainties. If you need mental health support, please

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note that the **Hamilton Counseling Center** (www.hamilton.edu/offices/counselingcenter, 315-859-4340) is always available to you. If you need immediate assistance, phoning the Counseling Center and selecting option 2 will connect you with a counselor, 24 hours a day, 7 days a week. Please do not hesitate to seek out help if you need it.

Course Schedule

Research seldomly marches forward at the pace that we would prefer. I have provided you with the following schedule as a guideline for making sure you can complete your senior project on time. Please note that aside from the final presentation date and final manuscript date (both of which are set by the department and thus not adjustable), all other deadlines can be adjusted as necessary (please talk to me about this). That said, if you fall too far behind the posted schedule, it may be difficult to participate to catch up in time.

<u>Date</u>	<u>Meeting Topic</u>	<u>Assignments</u> (due by group meeting)
Jan. 21	Introductions	CITI Certification
Jan. 28	Conducting Literature Reviews	Topic Ideas
Feb. 4	Writing Methods	Annotated Bib. 1
Feb. 11	Revising Methods	Annotated Bib. 2, Methods (draft)
Feb. 18	Writing Introductions	Annotated Bib. 3, Methods (revised)
Feb. 25	Revising Introductions	Introduction (draft)
Mar. 4	Conducting Statistical Analyses	Introduction (revised)
Mar. 11	Writing Results	Statistical Analyses
Spring Break		
Apr. 1	Revising Results	Annotated Bib. 4, Results (draft)
Apr. 8	Revising Discussions	Annotated Bib. 5, Results (revised)
Apr. 15	Peer-Review Discussions	Discussion (draft)
Apr. 22	Making Presentations	Discussion (revised)
Apr. 29	Practice Presentations (2x)	Presentation Slides
May 6	Final Presentations (4-8pm)	
May 12	Research Paper Due (4pm)	