

SENIOR THESIS IN COGNITIVE SCIENCE

PRESENTED BY: PROFESSOR ABRAMS

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TIMELINE OF THE SENIOR THESIS

- **First Semester:**
 - At the beginning of the semester, confirm your senior thesis advisor and discuss your proposed thesis topic with them (if you haven't done so already)
 - Register for LGCS 191 under your thesis advisor's name
 - Prepare a list of references ("reading list") that will be the basis for your literature review
 - Do a lot of reading
 - Write a draft(s) of your literature review, which includes a brief overview and method of your proposed experiment
 - Set a timeline for submitting drafts to your advisor so that they will have time to comment and return to you for revision
 - Meet with the statistics consultant for advice on experimental design and analysis
 - Turn in your final literature review by the department-specified deadline

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TIMELINE OF THE SENIOR THESIS

- **Suggested 1st semester timeline:**

- **January 30:** Register for LGCS 191 under your thesis advisor's name
- **February 15:** Finalize your reading list of references you will review
- **March 15:** Submit your first draft of lit review to your advisor
 - After this, set a timeline for submitting revised drafts to your advisor so that they will have time to comment and return to you for revision
- **April 26:** Turn in your final literature review (.pdf) to your advisor and Professor Abrams
- **By May 5:** Have at least one meeting with the statistics consultant during the semester

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TIMELINE OF THE SENIOR THESIS

- **Second Semester:**

- Register for LGCS 191 under your thesis advisor's name
- Set up your experiment, and collect data
 - Before beginning data collection, you should apply for IRB approval **IF** your project is not covered by your thesis advisor's current IRB
 - Have to go through IRB of your college
- Statistically analyze and interpret data
 - Meet with the statistics consultant
- Write a draft(s) of your thesis (lit review + experiment)
- Set a timeline for submitting drafts to your advisor so that they will have time to comment and return to you for revision
- Turn in your final senior thesis by the department-specified deadline
- Poster presentation of thesis

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TIMELINE OF THE SENIOR THESIS

- **Suggested 2nd semester timeline:**
 - **January 30:** Register for LGCS 191 under your thesis advisor's name
 - **February 6:** Set up your experiment; apply for IRB approval **IF** your project is not covered by your thesis advisor's current IRB
 - **March 15:** Complete data collection for your experiment
 - **End of March:** Statistically analyze and interpret data
 - Meet with the statistics consultant, at least twice during the semester
 - **April 5:** Write a draft(s) of your thesis (lit review + experiment)
 - Set a timeline for submitting drafts to your advisor so that they will have time to comment and return to you for revision
 - **April 19:** Turn in your final senior thesis (.pdf) to your advisor and Professor Abrams
 - **April 28, 3-5 PM** Poster presentation of thesis

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HOW TO FIND A THESIS ADVISOR

- Ask professors who have an interest and/or expertise in the cog sci topic you want to study
- Cog sci thesis advisors who may be available; you are NOT limited to these and should feel free to reach out to any faculty in any department:

LGCS:

- Professor Galia Bar-Sever
- Professor Laura Johnson
- Professor Robin Melnick
- Professor Megan Zirnstein (sabbatical f'23 and s'24)
- Professor Lise Abrams

Other Depts/Colleges:

- Professor Shlomi Sher (Psychological Science; sabbatical s'23)

***Make sure that your thesis is an appropriate topic within cognitive science

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ONCE YOU HAVE A THESIS ADVISOR

- Register for LGCS 191
 - Submit a PERM for LGCS 191 under your specific advisor's name
 - If your thesis advisor is not listed as an option, email Professor Abrams, and she will ask the registrar to add a section for that person; then you can submit a PERM
 - You can do this after the semester begins

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HOW TO FIND A TOPIC AND RESEARCH QUESTION

- What topics in your cognitive science major courses did you find most interesting?
- Any new questions come out of research projects that you have already done (in classes or with a professor)?
- Read some recent articles on topics that interest you.
- Perhaps you have an idea for an experiment but don't know the underlying literature and theories.
- Once you have chosen your topic, you will review this literature and demonstrate a gap that exists in our knowledge of the topic, leading to a specific research question that your thesis will address.

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CONTENT OF A LITERATURE REVIEW

- A literature review summarizes references that are *relevant* to your topic and research question:
 - Inform the reader about the current status of a particular topic or issue in cognitive science
 - Provide background that includes theoretical issues and empirical findings from the existing literature
 - Clearly show the relevance of the selected references
- Things to consider:
 - Organize your review in a way that tells a “story” for what scientists already know about the topic and sets the stage for your research question
 - Do not give excessive detail on individual experiments (e.g., “this study tested 22 participants”)
 - Be critical in reviewing the literature – what are the strengths and limitations of previous research, and how will your proposed research question build upon them?

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CONNECTING THE LIT REVIEW AND RESEARCH QUESTION

- The rationale for how the previous research leads directly to the research question should be explicitly clear
- Ensure that you are not simply replicating previous research; your research question should be *novel*
- Your research question should be able to be answered with an *experiment*
 - What variable(s) will you manipulate and measure?
 - What data will you collect?
- Make sure your experiment can be completed in time for you to analyze the data and write the thesis results and discussion sections

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FORMAT OF THE LITERATURE REVIEW

- Follow APA guidelines for reporting research
 - Note: Your lit review will be much longer than in a standard APA paper
 - For questions not answered by APA guidelines (e.g., is an abstract necessary in a literature review), consult with your advisor about what they prefer
- Number of references:
 - Depends on the field you are reviewing; previous theses included 20-40 references with an average around 30
 - Discuss a reference list with your thesis advisor to ensure that your chosen references demonstrate a thorough review of relevant literature
 - Similarly, consult with your advisor to discuss the length (number of pages) of the lit review
- At the end of the literature review, include a brief (2-page) overview of your research question and method section of your proposed experiment
 - Should be written in APA style and include appropriate subheadings (e.g., Participants, Materials, Design, Procedure).

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CONTENT AND FORMAT OF THE FINAL THESIS

- A senior thesis is an original and substantive research project conducted under the close supervision of a faculty member
 - The thesis is written up in APA style (follow the guidelines closely!) and generally consists of:
 - A cover page
 - Abstract
 - Introduction (which is your literature review, modified as needed to accommodate your results)
 - Method (you will expand on the brief one you drafted for the literature review)
 - Results
 - Discussion
 - References

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RESOURCES AVAILABLE TO YOU

- Theses from previous Cognitive Science graduates
 - Online at <https://sakai.claremont.edu/portal/site/lgcsinfo>
 - Some available in the library in the Linguistics and Cognitive Science suite in Edmunds Hall
- Your advisor
- The LGCS statistics consultant, Crystal Saludes (crystal.saludes@cgu.edu)
- LGCS admin, Elizabeth Contreras (Elizabeth.Contreras@pomona.edu) – oversees dept funds for participant payments or other research-related expenses
- The Cognitive Science Coordinator: Professor Abrams (lise.abrams@pomona.edu)
- Website for information: <https://research.pomona.edu/lgcs/major-requirements-and-courses/senior-thesis/>

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RESOURCES AVAILABLE TO YOU

- **Funds to support thesis research**
 - Students can request funds for reasonable and justifiable expenses. You MUST request the money and get approval in advance, before spending it.
 - Up to \$300: Email a detailed budget and a clear justification of each item for the request to Elizabeth
 - \$301-\$600: Email the budget, justification, and your thesis advisor's approval of your request to Elizabeth
 - >\$600: Email the budget, justification, and thesis advisor approval to Professor Abrams, lise.abrams@pomona.edu
- Once request is approved:
 - **If purchasing supplies/equipment:** Provide a link with the exact item you need, provide the quantity of each item that needs to be purchased, and email the info to Elizabeth. She will then purchase the item using the department card; do not purchase the item yourself. Please note that the purchased equipment is property of Pomona College and must be returned to your advisor upon completion of your thesis.
 - **If paying participants:** You can either get gift cards (which you can get ahead of time) or pay participants out of pocket and get reimbursed. The "Participant Subject Payment Receipt" must be filled out by every person receiving payment. This form will be submitted to Elizabeth in order to receive a reimbursement once your thesis has been submitted. If you have not been employed by Pomona College, also submit the completed Vendor Data Record form in order to receive your reimbursement.

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RESOURCES AVAILABLE TO YOU

- **Testing rooms**

- Edmunds 213 is available to use for testing participants.
- To reserve a room, go to: https://docs.google.com/spreadsheets/d/1QM5q-UGf6o9xe5h4tz19OdQNov3O6_0VqyrGp77r_IM/edit?usp=sharing
- Put your name in the days/times you want to reserve (make sure you are on the tab for the intended room)
- If you end up not needing a room, make sure to go in and delete your info.
- The key to those rooms is available in the **lockbox** in Edmunds 215 (check your swipe access); the lockbox code is <ask Elizabeth or Professor Abrams>