Overview

The research project constitutes 45% of your course grade. In a nutshell, it entails developing a research question and then designing and implementing an experiment to answer that research question in a group setting.

Forming Groups

Students will be assigned to a research group based on their academic background and skill set (music, technical, etc.) at the beginning of the semester. Each group must choose a leader who will be responsible for submitting any assignments that require group participation and/or integration. Distribution of tasks and writing responsibilities must be negotiated within the group. It is the group’s responsibility to indicate who are the primary writers/collators for each assignment—or if everyone contributes something, what precisely are the individual contributions.

Overview

- **Topic choice (5%)**: due September 29 at 11:55pm
- **Annotated bibliography (10%)**: due October 13 at 11:55pm
- **Literature review (15%)**: due October 27 at 11:55pm
- **Experimental design (15%)**: due November 10 at 11:55pm
- **Experiment participation (10%)**: must be completed by December 14
- **Oral presentation (5%)**: December 21 from 10am-12pm
- **Final written report (30%)**: due December 22 at 11:55pm
- **Peer evaluation (10%)**: due December 23 before midnight

Grading guidelines

All written parts submitted will be graded on the basis of *clarity and thoroughness*. There will be two main criteria for grading (with a greater emphasis on content over writing style):

- **Writing style**: Basic grammar/punctuation/editing; logical structure; correct citation style for bibliography. *You must use APA citation/reference style for all assignments.*
- **Content**: Good design/methodology for the research proposal and experimental design; careful and complete reporting of data analysis and results; thoughtful discussion and conclusions for the final written report.

The experiment participation grade is purely based on whether you participate or not in your fellow students’ experiments. The oral presentation score is based on adequate preparation, organization of material, and general clarity.

**Topic choice (5%)**

*Due September 29 at 11:55pm*

Each student must come up with one or more project ideas. The group must then vote on the final topic. If there is a tie, the instructor will cast the tie-breaking vote. Groups should discuss the topic ideas before voting. All of the preliminary topics ideas as well as the final topic must be submitted in a document. The student responsible for each preliminary topic idea and the number of votes that the idea received must also be listed in the submission. Example:
Group number: 1  
Group leader: Ann Walker  
Group members: Joe Brown, Mike Smith, Jen Miller

Final topic idea: Pitch memory in melodies

Preliminary topic ideas:  
Perception of musical tension in jazz (Ann Walker) – 1 vote  
Judging dissonance in harmonic progressions (Joe Brown) – 0 votes  
Pitch memory in melodies (Mike Smith) – 2 votes  
Syncopation and perception of emotion (Jen Miller) – 1 vote

Annotated bibliography (10%)  
Due October 13 at 11:55pm

As a first step, each student, on his/her own, is required to come up with a minimum of 10 references with the following criteria:

1. At least 8 of the references must be peer-reviewed journal articles.  
2. The other references can either be additional journal articles or other reference types such as book chapters or books. The books must be fairly specific to your topic area and not just general references (too general would be our Thompson textbook).  
3. No references may be magazine/press articles or non-academic-journal websites such as Wikipedia.

The group will then meet and agree on a final set of 20 references with the following requirements:

1. At least 15 of the references must be peer-reviewed journal articles.  
2. The other references can either be additional journal articles or other reference types such as book chapters or books. The books must be fairly specific to your topic area and not just general references (too general would be our Thompson textbook).  
3. No references may be magazine/press articles or non-academic-journal websites such as Wikipedia.  
4. The 20 references described above are the minimum, but you may have as many additional references as you like.  
5. At least 10 references on your list must be relatively recent (2006 or later).  
6. Include your project idea at the top of your bibliography.  
7. All references must be in APA format.

These 20 references will then be distributed evenly among group members. Each student will then write a paragraph-long summary/description. These “annotations” must include the following:

1. A very concise summary of the topic the paper addresses.  
2. A very concise description of the main contributions/conclusions of the paper.  
3. Why/how the paper is relevant to your research topic (e.g., why specifically is it useful?)

Final requirements:
1. For this assignment, group the references by student. For the final report, references will be listed in alphabetical order by author last name.  
2. At the top of your bibliography, include a brief description of your topic area and working research question.  
3. Document must be single-spaced.
Note on APA style

More on APA format can be found on the course website and at these links:

http://owl.english.purdue.edu/owl/resource/560/05/
http://www.library.cornell.edu/resrch/citmanage/apa
http://www.apastyle.org

Things to note: differences between single vs. multiple citations grouped together in the text; use of “and” versus “&”; when to use “et al.” and when to list all authors; grouping of multiple citations by author name, not date; differences between citations in text and listing of authors in the bibliography.

The following are some examples of references in APA format (journal article by one author, journal article by multiple authors, a book, and an edited volume):


Literature review (15%)
Due October 27 at 11:55pm

The literature review is an in-depth discussion of prior work relevant to your research topic. It cites the references you have already compiled in your annotated bibliography, summarizing and reflecting on their main findings, problems, and open questions. Make sure you use APA style for all citations, and in general, employ typical practices for citing references you’ve seen in your article readings—i.e., include dates for all citations, do not include article titles in the body of your text, etc.

Your literature review should be a cogent, well-structured outline of the major prior work in your topic area. Your review should point out divergent perspectives and try to tie together prior work in a way that concisely summarizes the main issues for an unfamiliar reader. You should try to group papers by theme; for example, if you find there are two competing schools of thought about your research topic, you should highlight this in your review and summarize the relevant articles in light of this larger context.

Specific requirements:
1) Your review must tell a coherent story for your specific topic. This story and the general structure of the literature review must be discussed and agreed upon by the group.
2) Include a short (a few sentences at most) topic summary at the beginning of your document.
3) Include the bibliography (without annotations) at the end of the document. Highlight any new references added since you submitted your annotated bibliography.
4) Use the introduction/background sections in the journal articles you’ve read as a model for how you should write your review.

5) Make sure you use correct APA citation style (both within the main text and in parentheses).

6) Document must be single spaced.

The literature review will serve as a major portion of the introduction section of your final written report.

**Experimental design (15%)**

_due November 10 at 11:55pm_  

The experimental design includes (1) a very specific research hypothesis related to your research topic and (2) the design for an experiment to verify or refute your hypothesis. The hypothesis should be informed by what you have learned from the literature review process. It should be framed in a way that, when tested properly, will offer new information or help answer a research question in your topic area. In your experimental design write-up, you must address the following:

- Explain why your research question has value to the field.
- Point to a gap in current state of the art (as described in your literature review) that you are trying to address with your research question.
- Translate that research question into a testable hypothesis.
- Present a design for an experiment to test that hypothesis.
- Make sure you use APA citation style and include at the end of your text a list of any references you cited.

The design section must be broken down into the following sub sections:

- General overview of the methodology (e.g., the philosophy behind your approach).
- Participants: A description of the subjects you expect will participate in your study. Include the expected number of participants and estimated averages and standard deviations of appropriate descriptive statistics (e.g., estimated age, number of years of instrumental training, number of years of music theory training, etc.—these will eventually be replaced by real numbers after you run your experiment).
- Materials: A very precise, detailed description of the stimuli.
- Procedure: A step-by-step outline of how the experiment will be run and what you will be asking subjects to do. This should also include a description of the equipment you plan to use and any other experimental interfaces (type of computer, software applications, headphones, speakers, etc.).

This text, integrated with the literature review, will constitute the introduction and most of the methods section of your final report. Note: the document you submit must be single spaced.

**Experiment participation and participation report (10%)**

_participation must be completed by December 14  
Report of participation by each group must be completed by December 15_

You are required to participate in all of your fellow students’ experiments (most likely 4-5 experiments). You are can also recruit any other willing participants outside of class (e.g., friends or family), but this is optional.

The report of participation must be an email sent by the group leader to the instructor listing all of the students who did not participate. This note must either say, “all students participated” or
provide the list of names of students who did not participate. Do not send a list of all participants names.

**Oral presentation (5%)**

*December 21, 10am-12pm*

The presentation is your opportunity to present your work not only to your instructor, but also to your classmates. In structure, it should follow the standard format for an empirical research paper: it should cover the relevant background literature, present your motivation and hypothesis, explain your experimental design, describe your results, and provide a general discussion of your results, and talk about future directions.

The presentation should be 15 minutes in length and you are expected to bring your own laptop (if none of your group has a laptop, then other arrangements can be made; however, the instructor must be notified at least two days in advance and the slides must be finished and submitted at least 24 hours in advance). It is up to the group to distribute the presentation responsibilities equitably among members. It is recommended that each student talk through one section: e.g., student #1 presents the introduction; student #2 presents the methods; student #3 reports the results; and student #4 presents the discussion/conclusions. You must submit your presentation slides on NYU classes.

**Final written report (30%)**

*Due December 22 at 11:55pm (via NYU Classes)*

Your final report should consist in part of the text you wrote earlier in the semester with the primary addition of a results and discussion section. You must use APA-style citations and references throughout. The structure should be as follows:

ABSTRACT
Summarizes your research report in under 300 words.

INTRODUCTION
Describes the context and significance of your research question and discusses relevant prior work. Presents your hypothesis.

METHODOLOGY
Describes the design and execution of your experiment. Sub-headers should include a “Participants,” “Materials,” and “Procedure” section. Make sure you describe the stimuli very precisely, providing enough detail so that someone could recreate your stimuli from reading the description.

RESULTS
Describes the results of your experiment and includes any necessary statistical analysis.

DISCUSSION
Summarizes your findings and discusses them in the context of prior work. This is where you should try to extrapolate beyond the narrow focus of your experiment. This is also an opportunity to theorize and be more speculative. You also want to discuss what aspects of the experiment could be improved, in retrospect, and what future work might follow.

ANNOTATED BIBLIOGRAPHY
Include the most current version of your annotated bibliography at the end of your report. Only include references that are actually cited in your paper. If you have new references that were not in your original annotated bibliography, make sure to include annotations for them.
Grading breakdown of 30 points:
- Abstract: 1 point
- Correct APA style and general structure of document: 3 points
- Literature review (includes annotated bibliography): 4 points
- Methods: 5 points
- Statistics: 3 points
- Results: 7 points
- Discussion: 7 points

Statistics must minimally include basic descriptive statistics and graphs/histograms showing means, standard deviations, and frequency counts. Extra credit will be given on for statistics if they go beyond the basic requirements and include correlations, regression, t-tests, or ANOVAs. All statistical tests must be reported in APA style.

Note that even if writing duties are distributed among different members of your group, everyone is responsible for the final version of every part of the document. Students are expected to have read and approved of the entire final report. Final note on format: document should be single spaced. You are not required to submit an entirely-APA formatted manuscript; your are only required to have APA-style citations and references.

In addition to submitting a written report, you must submit all of your relevant project files or media that you created for your experiment under the “Project Files” assignment on NYU Classes (due at the same time as the written report). Zip up all files into a single archive before submitting. Files you submit should include the following:
- All stimuli used in your experiment (audio, video, etc.)
- Text documents such as questionnaires
- All collected data
- Source code for any programs or scripts

Peer evaluation (10%)
Due by midnight on December 23
Must be submitted no earlier than December 23

All students must fill out a peer evaluation form for each student in their group. This is done online here:

http://cognition.smusic.nyu.edu/2042_peer_eval

Students who do not complete peer evaluations will receive a -5 deduction on their own peer evaluation score.

Note on deadlines

Assignments will incur a 25% penalty for every day they are late. Work submitted four or more days late will incur a penalty of 100%.

Experiment participation, the final written report submission, and the oral presentation must be completed on time. Being late on these components will result in an automatic zero.