

**PS504: Neuroimaging Data Analysis (NDA): A Hands-on Approach
SPRING 2026**

Lecture: Friday 2 PM – 5:15 PM
Location: PSY 210, 64 Cummington Mall

Instructor: Arthur Lee
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Office: 111 Cummington Mall, Room TBD
Hours: TBD

COURSE DESCRIPTION: This course is aimed at providing an in-depth understanding of fMRI analysis methods through a guided coding experience. With the increasing number of programs dedicated to fMRI analysis, it's ever more important for users to understand the logic and process behind them. The class time will include brief lectures on background information, but most of the class hours will be spent on hands-on analysis of fMRI data where we recreate analysis pipelines with our own code. The instructor will break down the analyses into step-by-step computations, but it is recommended that the students are at least somewhat comfortable with one of MATLAB, R, or Python. Students can use any of the three languages for this class and examples will be provided in all three languages. If there is no clear preference, MATLAB is recommended as there will be less need to search or download packages, and it will be easier for the instructor to troubleshoot.

BOOKS & OTHER COURSE MATERIALS

There are no required materials for this class other than a well-functioning laptop. Students should come to the first class with their choice of statistical language installed and ready to use. As the class progresses, students may opt to run certain analyses on the computing cluster, which they will be given access to.

All data used for the classes will be provided by the instructor. Students may bring their own dataset to apply the class materials and to present as the final research project. If a student does not have their own dataset to use, the instructor can provide one, with recommendations on research questions to investigate.

A Slack channel will be provided for outside-of-class discussion between students, and students may get help from the instructor or from each other on assignments. However, it is important to know that being able to identify plausible analysis methods on your own is a skill that requires training. Assignments should be submitted individually and not as a group.

COURSE REQUIREMENTS & GRADING

Assignment	Points
Assignments	80pt
Final Project	20pt
Total points	100pts

Assignments. After every class, there will be an assignment that helps to organize and solidify the concepts learned in class. There will be three levels of assignments: basic, intermediate, and advanced. Students are encouraged to choose the level that they feel like they can manage within a week, but it's generally expected that undergraduate students will focus on the basic assignments, while graduate students will focus on the intermediate assignments. The basic assignments will focus on organizing and systemizing the materials learned in class, while the intermediate assignments will ask students to use the skills learned in class to perform new analyses on their own. The advanced assignments, for those interested, will focus on pushing the limits of our analysis methods.

Final Project: Students will be expected to identify a hypothesis or a question that they want to investigate using either their own data, publicly available data, or data provided by the instructor. The last two classes will be dedicated to students' presentations of their projects where they have applied the materials they learned to their own research. For graduate students, a short academic-paper-style write-up is requested after their presentation.

Final Letter Grades will be calculated based on the following total points after rounding off to the first decimal.

A	> 93.0 pts	C+	77-79.9 pts
A-	90-92.9 pts	C	74-76.9 pts
B+	87-89.9 pts	C-	70-73.9 pts
B	84-86.9 pts	D	60-69.9 pts
B-	80-83.9 pts	F	< 60 pts

- Academic Conduct Code.** Any violation of academic honesty or plagiarism will result in a failing grade. Please see <http://www.bu.edu/academics/cas/policies/academic-conduct/>.
- AI policy.** You may use generative AI tools to assist you in your assignments. Please exercise caution, however, as AI tools can often generate incorrect information that you will be responsible for. If you do use AI tools, you must acknowledge the use of AI tools in your assignments with an appropriate citation (<https://apastyle.apa.org/blog/how-to-cite-chatgpt>) and append your usage log (e.g., chat history) to your submission so that we can better diagnose if and where something went astray. Uncited use of AI will be considered a violation of academic honesty.
- Accommodations.** Boston University works to provide reasonable accommodations for those with documented disabilities. If you have disability-related accommodations for this class, please reach out to me within the first two weeks and provide copies of your paperwork from disability services. *If you are a student with a disability or believe you might have a disability that requires accommodations, please contact the Office for Disability Services (ODS) at (617) 353-3658 or access@bu.edu to coordinate any reasonable accommodation requests. ODS is located at 25 Buick Street on the 3rd floor.*
- Mandated Reporter.** The instructor is a mandated reporter. This means that he has a responsibility and requirement to report potential instances of sexual misconduct, harassment, discrimination, and retaliation. Students experiencing any form of prohibited discrimination, harassment, or sexual misconduct should know there are confidential resources on campus that can help. Students are not required to participate in an investigation or resolution process to receive supportive measures including reasonable academic support. To learn more about reporting at Boston University or to understand your rights under our policies please visit the Equal Opportunity Office at bu.edu/eoo or contact them at eoo@bu.edu.

Additional Resources for Students

SERVICE	WEBSITE
Accessibility: Resources & Service	http://www.bu.edu/disability/
Education Resource Center	http://www.bu.edu/erc/
Writing Center	http://www.bu.edu/writingprogram/the-writing-center/
Counseling & Psychological Services	https://www.bu.edu/shs/