Shackman Lab: Fall 2017 Lab Meeting Syllabus

ADMINISTRATIVE INFORMATION

Lab Meetings: Wednesday 8:00-9:00 AM in BPS 1140A
Lab Website: http://shackmanlab.org
Instructor/Lab Director: Dr. Alex Shackman (shackman@umd.edu; 3123G BPS) Office Hours by Appointment.
Teaching Assistants/Graduate Students: Rachael Tillman (rmtillman@umd.edu | 0124 BPS) and Claire Kaplan (cmkaplan@umd.edu | 0124 BPS). Office Hours by Appointment.
Other Key Lab Staff: *Katie DeYoung*, Director of Operations (kdeyoung@umd.edu | 0124 BPS); *Dr. Jason Smith*, Director of Imaging Science (smithjf@umd.edu | 1147J BPS); *Dr. Juyoen Hur*, Postdoctoral Fellow (jhur1@umd.edu | 1147D BPS); *Allegra Anderson*, Project Coordinator (aander13@umd.edu | 0124 BPS); and *Samiha Islam*, Project Coordinator (sislam12@umd.edu | 0124 BPS)
Required Readings: URL links are provided below

Welcome to the Fall 2017 semester! This semester the weekly lab meeting will consist of the following:

(a) Weekly Journal Club moderated by the RA's with guidance from the Graduate Students.

(b) fMRI for Newbies. Students will have the opportunity to learn the basics through a combination of live and videotaped lectures, background readings, and hands-on laboratory exercises using the SPM12 software suite.

(c) Flash Talks. For students taking the lab for semester credit, you will be expected to present lab-relevant flash talks at the end of the semester. Everyone else is welcome to sign up for a flash talk if they would like the experience.

In addition, all RAs will be expected to contribute an average of 10 hours per week to data collection, study management, and lab administration.

It is critical that you regularly attend and participate in lab meetings in order to get the most out of this experience. If you are unable to attend a scheduled lab meeting, please notify Katie DeYoung, Allegra Anderson, and Dr. Shackman ASAP.

## GRADING POLICY (FOR STUDENTS ENROLLED FOR CREDIT)

Determined by the following criteria:
- Independent and conscientious completion of lab tasks, as indexed by supervisor's evaluation
- Consistent and timely attendance and active participation in lab meetings, including adequate preparation and thoughtful discussion of readings at lab meetings
- Completion of Flash Talk
- Adherence to professional and ethical behavior
- Continued participation in the lab will be dependent upon favorable evaluations and remediation of any problems noted on prior evaluations.

GRADING RUBRIC

Attendance/Promptness/Reliability/Successful completion of RA duties	65%	260 points
Journal Club	3.75%	15 points
Professionalism	6.25%	25 points
Flash Talk	25%	100 points
TOTAL:	**100%**	**400 points**

JOURNAL CLUB
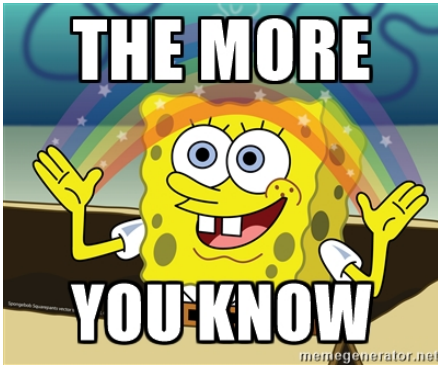
Readings for this course have been hand-picked by the Lab Director and Graduate Students; many are empirical papers or reviews by leading scientists in the field. What better way to learn about Affective & Translational Neuroscience then straight from the most exciting researchers working in the field today?

To get the most out of this course, it is important that every RA understand the key take-home points from the readings. Please read the assigned papers before the weekly lab meeting. Please do not hesitate to ask questions about anything you found confusing or challenging!

RAs will be randomly assigned to small groups (3-4 RAs/group) and required to moderate 1 article per semester. When moderating an article, groups will be responsible for providing the following:

- A brief summary of the aims, approach, key results, and implications
- The points you found most compelling
- Any limitations of the study or review
- Questions for group discussion—*There are no dumb questions!*

Questions should be used to guide the lab discussion. *Group members will be expected to facilitate the discussion of the article by asking leading questions, providing feedback on others' comments, and prompting engaged conversation.* Each article has a corresponding Graduate Student Consultant (Claire & Rachael) who are available to advise students as necessary. **It is the RAs responsibility to request consultation from the Graduate Student assigned as Consultant.**

Although some of the readings were written for a general scientific audience, many of the empirical reports employ complex or unfamiliar methods. Our expectation is that you will be able to discern the larger take-home points and implications, even if some of the techniques are unclear. **See appendix A for tips for deciphering the assigned papers.**

FMRI FOR NEWBIES

Students will have the opportunity to learn the basic concepts underlying fMRI signal acquisition, processing, and analysis through a series of lectures (live and pre-recorded), background readings, and hands-on exercises in SPM12. The objective is to provide a gentle conceptual introduction and a first taste of what it's like to process and analyze fMRI data. There will be plenty of time for questions and discussion.

As described in more detail below, with guidance from the graduate students, RA's will be expected to do the following outside of the regularly scheduled lab meeting time:

- Download the appropriate software onto their personal laptop and ensure that they can access our remote computer server
- Read the assigned background materials
- Watch the assigned background videos

Dr. Smith will provide several in-lab presentations and Dr. Hur will lead a "flipped" lab meeting in which students can work on the SPM data processing/analysis exercise. Dr. Hur and the graduate students will be available throughout the meeting to answer questions and provide guidance. Students are welcome to complete the exercise on their own or working with a partner or two.

END OF SEMESTER FLASH TALKS (5-8 MINUTES)

The next to last lab meeting will be set aside for student presentations. Students taking the lab for course credit are required to present, but everyone is encouraged to give a flash talk, as the experience will be invaluable for individuals considered a broad spectrum of career options. The presentation will be in the form of a "flash talk" (<9 minutes), and must be related to affective and translational neuroscience, but can be in any format you choose. Examples include:

- A live powerpoint presentation
- A pre-recorded video (e.g. public service announcement)
- A mini TedTalk

The presentation could be focused on:

- A nano-lecture (e.g. a relevant topic incorporating outside scholarly readings)
- A mobile-friendly app that you develop to nudge emotion
- A proposed solution or intervention to a relevant public health problem
- An (informal) analysis of your own mood or emotional traits (e.g. present the results of a 10+ day daily diary study)
- A hypothetical experiment

Feel free to be creative on this assignment, but the topic and format must be pre-approved by Dr. Shackman (deadline: 11/01/2017).

FALL 2017 SCHEDULE

Date	Activity	TA	Moderators
9/20	Introductions, Lab expectations, and Administrative Details	KD	-
9/27*	Tottenham & Gabard-Durnam (2017). The developing amygdala: a student of the world and a teacher of the cortex. *Curr Opinion in Psychol, 17*, 55-60. http://www.sciencedirect.com/science/article/pii/S2352250X16301993	RT	Kim, Antonacci, Boumaiz, Surasinghe
10/4	Dr. Alex Shackman, *MRWhat?!* Dr. Jason Smith, *MRI for Newbies* (1 of 2) **Background Reading:** https://miykael.github.io/nipype-beginner-s-guide/neuroimaging.html *This is a fantastic all-in-one intro, <u>but</u> some of the material is more technical and may, at times, be a little confusing—please come prepared to ask questions! This includes the graduate students!*	RT	-
	TO BE COMPLETED PRIOR TO 10/18/2017: Students prepare for the hands-on lab exercise (10/18) using the ==Laptop Prep== hand-out distributed on 10/4/2017. *Interested students are strongly encouraged to learn some basic Linux/Bash commands using the tutorials available at:* https://fsl.fmrib.ox.ac.uk/fslcourse/lectures/UnixHandout2017.pdf http://fsl.fmrib.ox.ac.uk/fslcourse/unix_intro/ *If you're interested, please let us know, so we can make arrangements with one of the staff to serve as a consultant and mentor.*		
10/11	Dr. Jason Smith, *MRI for Newbies* (2 of 2) **Background reading:** http://www.fmri4newbies.com/s/Psych9223_F2016_L03_Preprocessing.pptx *This also includes the graduate students: This is a very nice slide deck that directly builds on the terminology and other material introduced in the prior week's reading, which you may want to review before turning to this. If you get stuck/confused, take a peek at last week! I would especially like you to focus on the following slides:* 1-13; 23-28; 30-35; 38-40; 47-56; 61-63; 65-72; 74-77; 83-88; 90-91; 93-96; 98-103 *Come prepared to ask lots of questions!! There are no stupid questions!!!* Optional: - https://fsl.fmrib.ox.ac.uk/fslcourse/lectures/feat1_part1.pdf - https://fsl.fmrib.ox.ac.uk/fslcourse/lectures/feat1_part2.pdf	CK	-
10/18	Dr. Juyoen Hur, *Hands-On Exercise using SPM12* **Background reading:** http://www.fmri4newbies.com/s/Psych9223_F2016_L04_ExperimentalDesign-BlockDesigns.ppt -and- {please skim this prior to the meeting} http://www.fil.ion.ucl.ac.uk/spm/doc/manual.pdf Optional: - http://www.fmri4newbies.com/s/Psych9223_F2016_L05_GLM.pptx - http://www.fmri4newbies.com/s/Psych9223_F2016_L06_Event-related.ppt - http://www.fmri4newbies.com/s/Psych9223_F2016_L07_GroupData.pptx - http://www.fmri4newbies.com/s/Psych9223_F2016_L09_AdvancedDesigns.pptx - http://www.fmri4newbies.com/s/Psych9223_F2016_L10_Connectivity.pptx - http://www.fmri4newbies.com/s/fMRI4Newbies_L11_Issues-in-Brain-Imaging-jnmh.ppt - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3480642/	RT CK	-
10/25	Dr. Jason Smith, *Linking what goes down at the MNC to Data Quality* *There is no new reading for this lecture. **Please review the assigned readings from the 10/4, 10/11, and 10/18 meetings, as well as any of the optional slide decks. Please come prepared with any and all questions that cropped up as you reviewed the materials as well as any spurred by last week's hands-on exercise.** Our expectation is that you will have a solid grasp on the basics (what you know & what you are still confused by) by the time you arrive at today's meeting.*	JH	-
11/1	Shackman et al. (2016). Dispositional negativity: An integrative psychological and neurobiological perspective. *Psychol Bull, 142*, 1275–1314. http://shackmanlab.org/wp-content/uploads/2016/11/shackman_pb2016.pdf	CK	Furcolo, Grubb, Robinson
11/8	Hur et al. (2015). Interactive effects of trait and state affect on top-down control of attention. *Soc Cog and Affective Neurosci, 10*, 1128–36. https://academic.oup.com/scan/article-lookup/doi/10.1093/scan/nsu163	JH	Hum, Johnson, Okeke, Vogel
11/15	No lab meeting: Society for Neuroscience annual meeting	-	-
11/22	No lab meeting: Thanksgiving Break	-	-
11/29	Student Flash Talks (Attendance mandatory for all students)	-	AJS
12/6	Fall Party	-	AA!

APPENDIX A: TIPS FOR DECIPHERING THE ASSIGNED PAPERS

Here are some helpful tips to keep in mind as you read the assigned papers. Most of these apply equally well to review or empirical papers.

- First Steps
    - Begin by reviewing the title of the article. The title will indicate the central focus of the paper.
    - Next, read the abstract. The abstract will provide an overview of the study's main research question, goals, and results. Don't worry too much about the details or get hung up, just try to identify the big picture.
- Introduction
    - The introduction typically describes what the author hoped to achieve and states the problem being investigated. Normally, the introduction provides background and significance. It will summarize or at least foreshadow the experiment, the hypothesis(es) and the general experimental design or method.
    - Aims
        - What were the aims of the paper? It can sometimes even be helpful to highlight the main study goals and hypotheses as you are reading the introduction. This will allow you to easily reference the aims as you dig deeper into the methods, results, and conclusions.
        - If a review paper, what was the scope of the review? In other words, what are the authors trying to accomplish?
    - Background & Significance
        - What is at stake? Why is this line of research worthwhile or important? Are the goals important or trivial? Often, the larger significance of the work is highlighted at the beginning of the Introduction (and the end of the Discussion).
- Method and Participants
    - **We do not expect students to fully understand every methodological detail or technique. But it is important that students do their best to understand the *gist* of what was done.**
    - What did the authors do? Are the methods a good fit for the aims or is there a gap of some sort?
    - Who participated and how were they enrolled in the study?
    - How representative is the sample? Is it a good fit for the aims or does it limit the conclusions that can be drawn from the study?
- Key results
    - Did the results support the hypotheses?
- Discussion
    - The purpose of the Discussion is put the findings in the context of prior literature, acknowledge limitations of the current study, and suggest specific implications for future research and applications to prevention, intervention, or policy.
    - Often, the first paragraph of the Discussion summarizes the key results
    - Often, the final paragraph of the Discussion summarizes the broad implications
    - In between, the authors usually discuss the meaning and implications of the results as well as key limitations
    - Implications?
        - What are the implications for our understanding?
        - What are the main implications of the findings for theory and for practice?
        - Are there broader implications for our daily lives?
    - Limitations/Caveats, stated or otherwise?
        - Provide strong evidence for the stated conclusions?
        - Are the claims convincing? If not, what further evidence is needed? Are there other experiments or work that would strengthen the paper further?
    - Future challenges—What are the most profitable, impactful future steps?

APPENDIX B: PROFESSIONAL/ETHICAL BEHAVIOR

- We work in research facilities that must maintain a professional environment. How we act and dress reflects on the community as a whole. It is of the utmost importance that we respect the following guidelines while in the workplace.
- **Physical & Digital Security**
    - You will be assigned a key to the ATNL suite as various Google scheduling/email tools used by the lab. It is your responsibility to keep track of your key and passwords. There is valuable equipment as well as confidential data in the lab and on the network. Therefore, it is of utmost importance that you keep your key in a safe place at all times and that you **always lock all doors when exiting the lab, even for a few minutes.**
- **Behavioral Code Expectations**
    - Lab members are expected to interact professionally with supervisor(s), lab mates, and subjects
    - Mobile devices, such as notebook computers, phones, and tablets, may be used for note taking or other appropriate activities during meetings (not for checking email or internet browsing).
    - **Please respond in a timely manner (i.e., within 24 hours) to emails or other contacts from your supervisor or other lab members. Please "reply all" to group emails looking to find assistance with a specific task so that everyone is in the loop about progress toward finding someone to complete the task.**
    - If you are supposed to run a subject and you are sick, you are responsible for finding someone to fill in for you. Contact the project manager to notify them of the change ASAP.
    - If you are going to be away for an extended period work personal or professional reasons, please let your supervisor and the study coordinator know ASAP
    - If you are interacting with research participants or others from outside the lab, part of your job is to make those individuals feel as comfortable as possible. You can help to accomplish this by acting in a professional manner.
    - Arrive sufficiently (15-30 minutes) in advance of scheduled sessions to ensure that all study prep or set-up occurs prior to the participant's arrival.
    - The participant may arrive early. Plan ahead for this possibility, and be ready for them early.
    - Arriving after the subject has arrived is not acceptable under any circumstance.
    - Avoid drawing undue attention to mistakes made by members of the lab in the presence of research subjects.
    - Do not comment on a participant's data unless necessary.
    - Do not make any negative comments about the participant even if you think they can't hear you.
    - Avoid personal conversations with your co-workers.
    - Don't use language, make jokes, or discuss topics that would be generally considered offensive or unprofessional.
    - If you are about to say something and have any doubt at all about it being inappropriate or offensive, don't say it.
    - Learn study procedures sufficiently well that you can perform them accurately and with confidence.
    - Inappropriate interactions with research participants can negatively impact the quality and rigor of our research. As a consequence, inappropriate behavior with visitors, participants or at lab visits may be grounds for dismissal.
    - If you plan on ending your involvement with the lab, please let Dr. Shackman know ASAP. Ideally, this would afford sufficient time for you to help train your replacement.
    - Email is not a secure form of communication; do not include sensitive participant information in your personal emails.

<u>Lab Contract</u>

I, _____, hereby acknowledge that I fully understand

the expectations and requirements outlined in this syllabus. (We'll rehash

the most relevant things we want them to agree to here)

Full Name:_____

Signature: _____

Date: _____