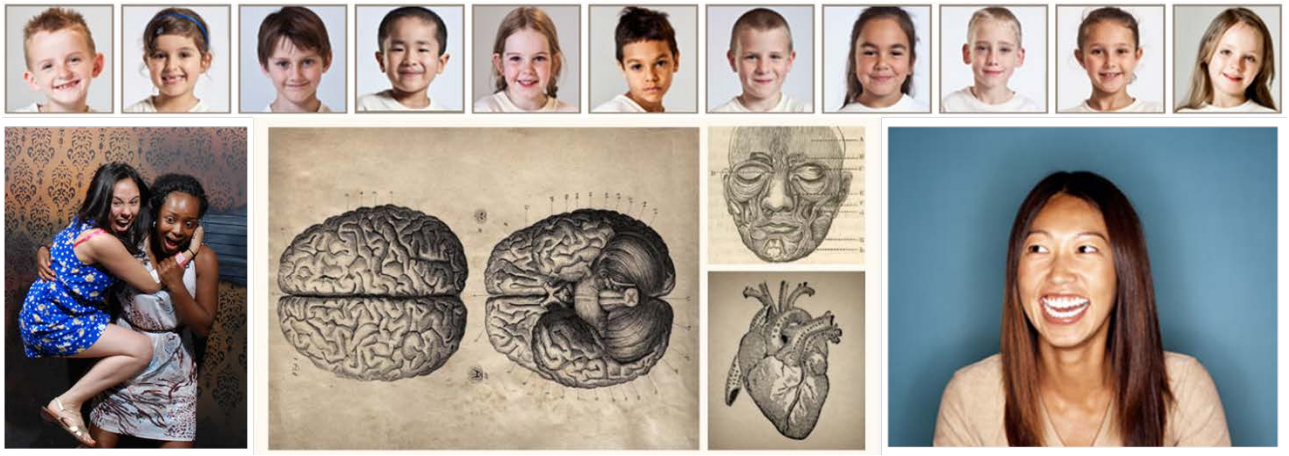

PSYCHOLOGY 210: A GENTLE INTRODUCTION TO TEMPERAMENT AND PERSONALITY (T&P)
PROFESSOR ALEX SHACKMAN, UNIVERSITY OF MARYLAND
SPRING 2018

What makes each of us unique? Where do these differences come from? How do they contribute to persistent differences in health and wellness?

This course provides a gentle introduction to the scientific study of temperament and personality, with a major focus on the genetic and brain systems underlying stable individual differences in Positive Emotionality, Negative Emotionality, and Self-Control.

The information in this syllabus is designed to help you understand how the course works and to get you started. We're excited to have you aboard and want you to get the most out of this opportunity to learn about the science of individual differences!

Note: This is an introductory course and an extensive background in biology, genetics, neuroscience, statistics, or other "STEM" fields not necessary to succeed.

ADMINISTRATIVE INFORMATION

- **Mondays and Wednesdays 5:00-6:15 AM in BPS 1243**
- **Instructor:** Dr. Alex Shackman (shackman@umd.edu; 1147D BPS)
- **Teaching Assistant:** Chelsey Barrios (chelseyb@umd.edu; 3140 BPS)
- **Required Materials**
  - **Textbooks**: n/a
  - **Technology**: Free 'clickers' mobile application
    - https://it.umd.edu/news/2017/clickers & https://tinyurl.com/UMDClickers & https://tinyurl.com/RegisterTurningPoint)
    - Download the mobile app to your smart phone using GooglePlay or iTunes
      - iTunes guide at https://help.turningtechnologies.com/turningpointapp/student/ios/
      - Android guide at https://help.turningtechnologies.com/turningpointapp/student/android/
      - Web-browser guide at https://help.turningtechnologies.com/responseware/web/
      - Handheld clicker guide at https://help.turningtechnologies.com/hardware/Default.htm#Hardware/Clickers/Clickers.htm

    - **Readings:** Available in .pdf format via Canvas (www.elms.umd.edu)
- **Class cancellation, room change, or other time-sensitive announcements:** Will be directed to the email account listed in Canvas
- **Academic Calendar: http://www.provost.umd.edu/calendar/**
- **Office Hours**
    - Dr. Shackman: By appointment
    - Ms. Barrios: Mondays 9-10 AM or by appointment

COURSE STRUCTURE

1. Classroom Lectures on the Scientific Study of T&P

You are *strongly* encouraged to attend all course meetings. Class will begin promptly at 5 PM. We have so much interesting material to cover and preciously little time together. ***Please be in your seat and prepared to begin by 5 PM.*** Each lecture or "module" will last approximately 75 minutes and will generally include the following components:

(1) Low-stakes cumulative quiz focused on material covered in prior Modules. Quizzes will be conducted using Clickers beginning the second week of class

(2) Conceptual roadmap outlining the new topics to be covered

(3) The science of T&P drawn from your readings and other sources. The lectures will incorporate occasional multimedia elements, such as film clips. Most of the time, there will be plenty of time for questions and discussion. The lectures are designed to provide a broad overview of the core conceptual themes, methodological issues, and highlights from the recent empirical record

(4) Recap of the most important take-home points

On occasion, we may have special invited guest lectures.

It is critical that you regularly attend class in order to do well in this course. I encourage you take notes during class to ensure comprehension of the material. It is important to emphasize that there are many opportunities for us to learn from one another in the classroom. Learning can stem from sharing knowledge or from asking questions.

The Learning Objectives file (Word document) available on Canvas provides a powerful tool to guide your independent study and review. I strongly recommend using the Learning Objectives to guide your test preparation. Please review them before you dive into the PowerPoint to forage for crucial pieces of information.

As an instructor, one of my central goals, is to create a safe, welcoming, and respectful environment for students of different genders, races, ethnicities, sexual orientations, socioeconomic groups, political parties, and religious and educational backgrounds.

UMD is one of the nation's most diverse campuses (https://www.collegedata.com/cs/data/college/college_pg01_tmpl.jhtml?schoolId=1526). Students of color comprise ~40% of all undergraduates. Many students are first-generation Americans or first-generation college students, and many have transferred from smaller schools around the state (as did my own parents). Some of you hail from 'liberal' urban areas (like my father's family), and others come from more conservative, traditional, or rural backgrounds (like my mother's). I will treat all of you equally, without distinction, and do my best to foster an inclusive learning environment.

The course is designed to promote thoughtful conversation and active student engagement—inside and outside the classroom. We'll begin the semester with a roundtable discussion and most of the lecture modules are peppered with explicit prompts (*'Students: What do *you* think'*). Given the sheer number of students and the preciously small amount of time that we have together, on occasion, I may need to redirect or pause the dialogue. Don't mistake the necessities of time management for a lack of respect or interest. I'm interested in what you have to say and what you think. Please take advantage of other opportunities for continuing our conversation outside the classroom, whether that be via email, office hours, or participating in the optional 'Snack with Shack, Man.'

I know that many of you have first-hand experience with adversity, trauma, and mental illness, and you should be aware that our classroom discussions will touch on these potentially sensitive issues.

Please do not hesitate to contact me with any concerns or suggestions. I am more than happy to work with you to create the best possible environment for learning about temperament and personality.

2. Background Readings

Readings for this course have been hand-picked by the instructor; many are empirical papers or reviews by leading scientists in the field. What better way is there to learn about T&P then straight from the most exciting researchers working in the field today?

To get the most out of this course, it is important that you understand the key take-home points from the readings. ***Please read the assigned papers before class. This will allow for a better understanding of the lecture and also give you the opportunity to ask questions. Please do not hesitate to ask questions about anything you found confusing or challenging! Readings will be available for download via the course website on Canvas.*** Again, there is no text book.

While many of the readings were written for a general scientific audience, some of the empirical reports employ complex or unfamiliar methods. ***My expectation is that you will be able to discern the larger take-home points and implications, even if some of the techniques are unclear.*** Throughout the Readings section (below), I have identified papers where I do not expect you to invest the time required to fully understand the more technical aspects of the methods. ***A helpful guide to deciphering the papers is provided later in the syllabus and is also available on Canvas.***

My aim is to avoid overburdening students with reading. But in some cases, you may find yourself hungry to learn more. The optional readings posted on Canvas are a great place to start. The source material for the lectures is also cited within my slides and I am happy to provide the papers upon request.

COURSE REQUIREMENTS & GRADING

1. Three Cumulative Multiple-Choice Examinations (Total: 60%; Lower mid-term examination grade dropped)

3 cumulative exams: 2 mid-terms and 1 final examination. Students are required to take the final examination.

Exams will consist of multiple-choice questions that involve critical thinking about concepts drawn from the readings and lectures.

Exams will take place in class on the assigned date in the syllabus.

You are welcome to bring a single index card (3" x 5") of notes to exams (double sided is OK). Notes may be handwritten, printed, or photocopied. No other notes, notebooks, materials, or devices will be permitted.

The purpose of the exams is two-fold. First, you should be able to demonstrate that you have read the material and understand the factual points and arguments. Second, you should be able to synthesize and integrate the material such that this knowledge can be applied in a broader context.

Because the exams are cumulative and occur on a regular basis, you will need to continuously study in order to be successful. On the other hand, you probably will not need to cram for any particular exam.

Make-up exams will only be considered in exceptional circumstances. Make-up exams will involve different questions than the standard exam (Advice: you want to avoid having to take a make-up exam).

It is important to emphasize that much of what is covered in the exams is not contained verbatim in the lecture slides, so attendance and attention during class is absolutely critical to your success in the course.

2. Homework (Collectively worth 25%; two lowest grades dropped)

For most of the Modules, you will receive two or more critical thinking take-home questions (CTQs) and a detailed set of Learning Objectives (LOs).

Please respond to any two of the CTQs assigned for a particular Module –or- complete the LOs for that Module. ***This is strictly either/or*** (i.e., complete 2 CTQ's and 0 LO's –or- 0 CTQ's and 1 LO).

> **CTQs.** The CTQs are designed to cultivate your capacity to critically assess the material covered in lecture, other recent empirical research, or science in the media. The CTQs are available on Canvas in the form of a Powerpoint slide deck.
>
> **LOs.** Another aim of the written homework is to encourage on-going review and learning (and minimize the need for cramming). To encourage this, you are welcome to complete the LOs for a particular Module. If you choose to do so, please ignore the CTQ's altogether and simply provide short written responses to all of the "prompts" for the current Module. The LOs are conveniently provided as a Word document on Canvas.

Please submit your responses using the "assignment" tab in Canvas. Length should range between ½ to 1 single-spaced page total for either the 2 CTQ's or the 1 set of Learning Objectives.

The homework is due by 5:00 PM one week following the classroom discussion of the relevant Module.

Each assignment (i.e. pair of responses) will be assigned one of the following grades: 1 (full credit), 1/2 (half-credit), 0 (no credit). Grades will be made available in Canvas. Unexcused late responses will be assigned a score of 0.

At the end of the semester, your 2 lowest response grades will be dropped (cf. http://www.sfcollege.edu/cat/?section=techTips/ExcelLowVal)—so there is no need to stress when the occasional unexpected issue crops up (e.g. illness, spaced out, etc.).

3. In-Class Quizzes Using Clickers (15%; 3 lowest grades dropped)

Beginning the second week of class, many lectures will begin with a low-stakes quiz focused on material covered in prior Modules. The quizzes are designed to encourage regular attendance and reinforce material from prior modules—minimizing the need to cram for exams.

These cumulative quizzes will be conducted using Clickers. Many of the questions that will ultimately appear on the exams will first be covered in the quizzes.

Clicker quizzes will be curved at the end of the semester as follows:

- If your raw score was 70% or greater, then you will receive full credit for that quiz (that is, it will be curved to 100%)
- If your raw score was less than 70%, then you will receive your raw percentage.
- For example, if Jill correctly answers 71% of the items on a quiz, then she will be assigned a curved grade of 100%. On the other hand, if she correctly answers 69% of the items, then she will receive a grade of 69%.

If you occasionally forget your Clicker or encounter a technical issue, don't sweat—the three lowest grades will be dropped.

4. Extra Credit Opportunity: *Informal Flash Talk* (2%)

You have the option to participate in an extra credit assignment worth 2 points toward your final grade. This assignment will take the form of a brief, in-class presentation (5-7 minute "flash talk"). The flash talk can be done solo or with a group. It must be related to class material, but can be in any format you choose. Examples include:

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

The presentation could be focused on

- A nano-lecture (e.g. a course-relevant topic incorporating outside scholarly readings)
- A mobile-friendly app that you develop to nudge T&P
- A proposed solution or intervention to a public health problem that is related to the class material
- An intervention targeting a facet of T&P discussed in class
- An (informal) analysis of your own traits (e.g. present the results of a 10+ day daily diary study)
- A hypothetical experiment aimed at discovering some aspect of T&P
- A videotaped interview(s) focused on a key aspect of T&P or the measurement of T&P

Groups of 2 or more can stage a scientific debate. Debates will be allotted (*N* * 5 min) total, where *N* is the number of debaters.

Feel free to be creative on this assignment, but the topic and format must be pre-approved by the TA by April 1st.

Flash talks will be assigned one of the following grades: 1 (full credit), 1/2 (half-credit), 0 (no credit). Grades will be made available in Canvas.

All extra credit points will be added directly to those that you earned based on the exams and critical thinking assignments. For example, if a student earned a total of 89 points and completed the extra credit, his or her final letter grade would be based on 89 + 2 = 91 / 100 points.

Over-all grades will not be curved or otherwise transformed.

5. Optional Snack with Shack, Man

Large, lecture-format courses can be very impersonal. To help address this, I would like to invite small groups of students to join me for a snack at *The Coffee Bar* (Stamp Union). Your choice of coffee, tea, juice and a pastry on me!

My hope is that this will provide an opportunity to get to know one another a little better and a relaxed, informal setting for chatting about the material covered in the class, other aspects of psychological science, your experiences as students on campus, and professional development (e.g. advice about working in a lab or applying to graduate programs).

Most of the time, we will meet up after class and walk over to the Union together. ***Additional details are provided in the Schedule on the next page. Please let me know as soon as possible if your assigned date and time does not work for you and we can determine a suitable alternative. Please note that 'Snack with Shack, Man' is completely optional!***

SCHEDULE

Please check the course website for the most up-to-date information.

Date	Activity
January 24	**Sick Day/Review Syllabus on Your Own**
January 29	Module 1: Introductions, Course Mechanics, and Fundamental Questions Roundtable
Section 1: Foundational Issues in the Scientific Study of Temperament & Personality	
January 31	Module 2: Is T&P Impactful? *Optional Snack with Shack, Man: Alexandrides, Antoshak, Arrington, Bastakoti*
February 5	Module 3: How is T&P Defined? What are the Fundamental Dimensions of T&P? *Optional Snack with Shack, Man: Beasley, Bond, Britt, Campos*
February 7	Module 4: How Did We Discover and How Should We Measure Individual Differences in T&P? *Optional Snack with Shack, Man: Choi, Chunta, Cipriano, De Almeida, Dergham, Duckett*
February 12	Module 5: How Are Traits and States Related? (Part 1) *Optional Snack with Shack, Man: Einhorn, Felipe, Fernicola, Floyd, Foster, Fresquez*
February 14 (Valentine's Day!)	Module 6: How Are Traits and States Related? (Part 2) *Optional Snack with Shack, Man: Geier, Galdi, Ghosh, Goodman, Gunna*
February 19	Module 7: What Do Traits Do? (Part 3) *Optional Snack with Shack, Man: Hacker-Cruz, Haimm, Han, Hanna, Hillman*
February 21	Module 8: Intermediate Phenotypes and Brain Imaging Tools, Part 1 *Optional Snack with Shack, Man: Hunt, Johnson, Kohli, Larkin, Lebron*
February 26	Module 9: Intermediate Phenotypes and Brain Imaging Tools, Part 2

	Optional Snack with Shack, Man: Lim, Liu, Lizama, Manning, Maranto
February 28	In-Class Review Session
March 5	**Cumulative Midterm Exam #1** (Led by TA or Proctor)
Section II: The Nature and Nurture of Temperament & Personality	
March 7	Module 10: Nature & Nurture (Part 1): Behavioral Genetics and Heritability *Optional Snack with Shack, Man: Maynard, Mayo, Mazel, McComas, McCurry*
March 12	Module 11: Nature & Nurture (Part 2): Molecular Genetics *Optional Snack with Shack, Man: McLallen, Miller, Morris, Murphy*
March 14 (Dr. S's bday!)	Module 12: Nature & Nurture (Part 3): Neurogenetics and Epigenetics *Optional Snack with Shack, Man: Norton, Nguyen, Oberfield, Odaka, Olobayo*
March 19	**Spring Break!**
March 21	**Spring Break!**
Section IV: Neuroticism and Negative Emotionality	
March 26	Module 13: Neuroticism/Negative Emotionality and Psychopathology *Optional Snack with Shack, Man: Paccagnella, Patel, Patel, Penka, Plotkin*
March 28	**No Class** – Dr. Shackman at Vanderbilt
April 1	**Extra Credit Flash Talk Proposals Due to TA**
April 2	Module 14: Behavioral Inhibition and Psychopathology *Optional Snack with Shack, Man: Robin, Robins, Rooke, Ross, Shah*
April 4	Module 15: Role of the Extended Amygdala in Negative Emotionality, Behavioral Inhibition, and Psychopathology *Optional Snack with Shack, Man: Shapiro, Soleymani, Steiner, Stroud, Swan*
April 9	**Flex/TBD**
April 11	Module 16: Splitting Negative Emotionality into Its Constituents, Part 1 *Optional Snack with Shack, Man: Taub, Tremble, Tuckley, Vogel, Wan, Wang*
April 16	Module 17: Splitting Negative Emotionality into Its Constituents, Part 2 *Optional Snack with Shack, Man: Wasserbach, Waugh, Wilson, Xiong, Yang, and Zabet*
April 18	In-Class Review Session
April 23	**Cumulative Midterm Exam #2** (Led by TA or Proctor)
Section V: Extraversion/Positive Emotionality and Constraint/Self-Control	
April 25	Module 18: Positive Emotionality, Self-Control, and Dopamine (Part 1): Depression and Anhedonia *Optional Snack with Shack, Man: Ye, Yogendran, Zaslow, Zhang*
April 30	Module 19: Positive Emotionality, Self-Control, and Dopamine (Part 2):Substance Abuse, Impulse Control Disorders, and Everyday Temptation
May 1	Flash Talk A/V Materials Due to TA for those presenting on May 2nd *You will not be allowed to present if you do not share you're A/V Materials at least 24 hours before your scheduled presentation time*
May 2	**Student Flash Talks**
May 6	Flash Talk A/V Materials Due to TA for those presenting on May 7th *You will not be allowed to present if you do not share you're A/V Materials at least 24 hours before your scheduled presentation time*
May 7	**Student Flash Talks**
May 9	**Semester Re-Cap and In-Class Review Session**

TBA	**Cumulative Final Exam** (Led by TA or Proctor)

Please note: This schedule is subject to change. Any updates will be announced in class and posted on the course website. Readings (and Tips for Deciphering Them), CTQ's, and LO's will be available on the course website. Examinations may be proctored by the TA or another member of the Department staff.

READINGS

SECTION I: FOUNDATIONAL ISSUES IN THE SCIENTIFIC STUDY OF TEMPERAMENT & PERSONALITY

Module 1: Introductions, course mechanics, and fundamental questions roundtable

Required

- The Syllabus!!

Optional, But Fun and Informative!

- Spotting Bad Science
- Spotting Logical Fallacies
- Carl Sagan's 'Baloney Detection Kit' – Popova Brain Pickings 2015

Module 2: Is T&P impactful?

Required

- Moffitt et al. PNAS 2011 [do not worry about the technical details of the analyses]
- Duckworth PNAS 2011 [brief scientific commentary on Moffitt]
- Kelly Psych Today 2010 [brief popular press summary of work linking neuroticism to divorce]
- Barker Time 2014 [brief popular press summary of work linking conscientiousness and neuroticism to diverse outcomes]

Optional

- Shackman et al. Psychol Bull 2016 [review detailing the myriad consequences of N/NE; highlights are described in lecture]
- Moffitt et al. Amer Sci 2013 [pop sci summary of Moffitt et al. PNAS 2011; reviewed in lecture]
- Caspi et al Nature Hum Behav 2016 [self-control and implications for public policy]
- Starr Science 2018 [short popular science piece on Mofitt, Caspi, and the continuing scientific value of the Dunedin study]

Module 3: How is T&P defined? What are the fundamental dimensions of T&P?

Required

- Caspi et al Ann Rev Psychol 2005 [you are welcome to skip the sections on Behavioral Genetics & Social Development]
- Wikiwand "Big 5" 2018 [Wiki entries; provides a quick 'nuts-and-bolts' summary of the Big 5 and ways of measuring them]

Optional

- Srivastava 2016 [blog post - provides a quick 'nuts-and-bolts' summary of the Big 5 and ways of measuring them; written in a conversational style]
- Kendler & Halberstadt Molec Psychiatry 2013 [incredibly compelling case study of adult twins, focused on the interactive effects of personality and experience on psychopathology, divorce, and other important real-word outcomes across the lifespan]
- Dahl NY Mag 2017 [short popular science article on the science of personality change]
- Goldsmith et al Child Dev 1987 [seminal roundtable discussion of childhood temperament]
- Shiner et al Child Dev 2012 [updated roundtable discussion of childhood temperament]
- Shiner chapter 3 *in press*
- Shiner chapter 14 *in press*
- Clark & Watson chapter 2008
- Zentner & Shiner chapter 2012
- Soto & John J Personality & Soc Psychol 2016 [updated Big 5 Inventory]

Module 4: How should we measure T&P?

Required

- Block Psychol Bull 1995a [critical review of the history and discovery of the Big 5/OCEAN]
- Tomarken Psychol Assessment 1995 [psychometrics for psychophysiologists and neurobiologists]
- Wikiwand "Psychometrics" 2018 [Wiki entries; provides a quick 'nuts-and-bolts' summary of reliability]
- Wikiwand "Factor Analysis" 2018 [Wiki entries; provides a non-technical summary of factor analysis]

Optional

- Stromberg & Caswell Vox 2015 [magazine article on why the popular Meyers-Briggs test is worthless]
- Funder Psychol Inquiry 1994 [entertaining essay on the strengths and weaknesses of trait theory]
- Epstein Psychol Inquiry 1994 [short, entertaining essay on the limitations of the Big 5 and similar descriptive models of T&P]
- McRae Psychol Inquiry 2010 [Updated rebuttal of Block; I found this to be very compelling]
- John, Naumann & Soto Handbook of Personality 2008 [definitive defense of the Big 5 and FFM]
- Hedge et al Behav Res 2017 [reliability paradox: why robust tasks don't produce reliable traits]
- Munafò et al Nature Human Behaviour 2017 [very readable discussion of the 'reproducibility crisis' in the social/biomedical sciences with specific recommendations for on-going and future research]

Module 5: How are traits and states related? (Part 1)

Required

- Chap 4 in Matthews, Deary & Whiteman 2009 [pp. 85-89 as well as pp. 107-end]
- Shackman et al. Psychol Bull 2016

Optional

- Fleeson JPSP 2001
- Fleeson JPSP 2009
- Suls & Martin J Personality 2005
- Watson & Clark Psychol Bull 1984

Module 6: How are traits and states related? (Part 2)

Required

- Shackman et al. Psychol Bull 2016

Optional

- Bolger & Schilling J Personality 1991
- Fox et al PlosOne 2008 [please do not worry about the technical aspects of FDG-PET imaging]
- Kaczkurkin et al Biol Psychiatry 2016 [please do not worry about the technical details; you are welcome to skip the material focused on developmental and sex differences]

Module 7: What do traits do? (Part 3)

Required

- Davidson Cog and Emo 1998 [please read Sections I and II only]
- Gable, Reis & Elliot JPSP 2000 [please do not worry about technical details of the analytic strategy; focus on Studies 2-3]

Optional

- Shackman et al. Psychol Bull 2016

SECTION II: THE NATURE AND NURTURE OF TEMPERAMENT AND PERSONALITY

Module 8: Intermediate phenotypes and brain imaging tools, Part 1

Required

- Ariely & Berns Nature Rev Neurosci 2010 [you only need to read Box 2 on page 288; feel free to read more!]
- Schwartz et al. Amer Psychol 2016 [you only need to read pp. 59-61; feel free to read more!]
- https://miykael.github.io/nipype-beginner-s-guide/neuroimaging.html

Optional

- Lillienfeld Behav Res Ther 2014 [cautionary note on the use of biological measures and the search for biomarkers]
- Logothetis Nature 2008 [please do not worry about the finer details; for those interested in delving more deeply into brain imaging techniques]
- Slides available at http://www.fmri4newbies.com

Module 9: Intermediate phenotypes and brain imaging tools, Part 2

Required

- The Neuroskeptic 2014, *Psychiatry: End of the Road for "Endophenotypes"*?
- Wager & Woo Sci Transl Med 2015 [brief commentary highlighting the potential value of developing sensitive and specific imaging biomarkers]
- Shackman & Fox Trends in Cog Sci 2018 [brief comment on biomarkers]

Optional

- Patrick Psychophysiol 2014 [brief non-technical commentary on 'the end of endophenotypes']
- Iacono et al Psychophysiol 2014c [summary of a large-scale, largely unsuccessful effort at Minnesota to link psychophysiological and electrophysiological endophenotypes to genetic variants; please do not worry about any of the technical details]
- Roiser The Psychol 2015 [brief, entertaining piece on the value of neuroscience for developing novel intervention strategies]
- Woo et al Nature Neurosci 2017 [fMRI biomarkers: opportunities and challenges]
- Lilienfeld & Treadway Ann Rev of Clinical Psychol 2016 [thoughtful commentary on the promise and potential pitfalls of developing intermediate phenotypes]
- Hedge et al Behav Res 2017 [reliability paradox: why robust tasks don't necessarily yield reliable intermediate phenotypes]
- Iacono et al International J of Psychophysiol 2017 [highly recommended, very readable, and up-to-the-minute commentary on the opportunities and challenges of endophenotypes]
- Fried Expert Review of Neurotherapeutics 2017 [highly readable, relatively short description of clinical heterogeneity and low reliability of clinical diagnoses, with implications for developing intermediate phenotypes/endophenotypes]
- Rodgers Encyclopedia of Behavioral Neuroscience 2010 [very readable, thoughtful critique of widely used animal models of fear and anxiety]

Module 10: The Nature & Nurture of T&P (Part 1): Behavioral Genetics and Heritability

Required

- Visscher et al Nat Rev Genetics 2008 [seminal review; please do not worry about the finer details]
- Wikiwand "Genetics" 2018 [Wiki entries; provides a quick 'nuts-and-bolts' summary of heritability and genetics]
- Fisher Twitter 2018 [heritability in 5 easy tweets]

Optional

- Plomin et al. Perspectives on Psychol Sci 2016
- Sauce & Matzel Psychol Bull 2018 [very readable review focused on the paradox of high malleability in the face of high heritability in the context of IQ; highly recommended]

Module 11: The Nature & Nurture of T&P (Part 2): Molecular Genetics

Required

- Sullivan et al Amer J Psychiatry 2018 [moderately technical summary of psychiatric genetics, from its historical origins in mid-20th C twin studies of schizophrenia to contemporary GWAS consortia, and onward with a description of the most fruitful avenues for future research; ***do not worry about the technical details, just the overall gist and most important take-home points***]. ***You may find the glossary in Iacono et al Psychophysiol 2014 useful.***
- Couzin-Frankel Science 2014 [science writer's personal story about getting genetic testing for familial breast cancer]
- Ritter Associated Press 2017 [very short news piece on commercial genetic testing, with a focus on the impact it had on the NIH Director's lifestyle choices]
- Wikiwand "Genetics" 2018 [Wiki entries; provides a quick 'nuts-and-bolts' summary of heritability and genetics]

Optional

- Pinker NY Times Magazine 2009 [science writer's personal story about getting genetic testing]
- Mitchell Eur J Neurosci 2018 [short, very readable introduction to neurogenetics, challenges and opportunities]
- Mukherjee New Yorker 2016b [science writer's story about his family and psychiatric genetics]
- Chabris et al. Curr Dir Psychol Sci 2015 [very accessible overview of GWAS]
- Iacono et al Psychophysiol 2014 [accessible overview of molecular techniques with a glossary]
- Topol Cell 2014 [very readable discussion of personal genomics]

Module 12: The Nature & Nurture of T&P (Part 3): Neurogenetics and Epigenetics

Required

- Meaney Ann Rev Neurosci 2001 [please do not worry about the finer technical details; seminal review paper by one of the key pioneers]
- Hughes Nature 2014 [brief non-technical commentary on Dias & Ressler Nature Neurosci 2014]
- Mukherjee New Yorker 2016b [science writer's story about his family, twins, and epigenetics]

Optional

- Dias & Ressler Nature Neurosci 2014 [please do not worry about the finer technical details]
- Bogdan et al Neuropsychopharm 2016 [sobering updated discussion of neurogenetics]
- Grabitz et al J Cog Neurosci 2017 [logical and methodological issues affecting genetic studies of humans reported in top neuroscience journals]
- Sullivan Biol Psychiatry 2017 [short, entertaining commentary on the demise of candidate gene studies]

SECTION III: NEUROTICISM / NEGATIVE EMOTIONALITY

Module 13: Neuroticism/Negative Emotionality and Psychopathology

Required

- Shackman et al Psychol Bull 2016
- Smith Nature 2014 [infographic on the global burden of neuropsychiatric disease]
- Lipka Chronicle of Higher Educ 2018 [short popular science/academic media piece on anxiety symptoms and disorders among undergraduate and graduate students]; please watch the accompanying video at https://www.chronicle.com/article/Facing-Anxiety/241968

Optional

- Reilly Time Magazine 2018 [popular media story about anxiety and depression in undergraduates and the growing burden on counseling centers]
- Denizet-Lewis NY Times Magazine 2017 [popular media story about anxiety and depression in teens]
- Schrobsdorff Time Magazine 2016 [popular media story about anxiety and depression in teens]
- Morrison Vox 2014 [short essay describing one patient's experience living with generalized anxiety]
- Orlando et al. Houstonia 2015
- ACHA-National College Health Assessment 2015 [national survey of undergraduate mental health]

- Barlow et al Clin Psychol Sci 2013
- Craske et al Nature Disease Primers 2017 [quick end-to-end primer on the anxiety disorders]
- Otte et al Nature Disease Primers 2016 [quick end-to-end primer on major depressive disorder]
- Clark et al Psychol Sci in the Public Interest 2017 [a mind-blowingly comprehensive review of historical and contemporary perspectives on classifying and diagnosing mental illness, with substantial implications for research, clinical practice, public policy, and patient experience; highlights the truth and consequences of different iterations of DSM and RDoC, including the 'smoke-filled back room' decisions that led to DSM-5; this is not for the fainthearted, but should be rewarding for those willing to invest the time. EXCELLENT SOURCE MATERIAL FOR FLASH TALKS!]

Module 14: Behavioral Inhibition and Psychopathology

Required

- Fox et al Ann Rev Psychol 2005
- NY Times Magazine article on behavioral inhibition

Optional

- Oler, Fox, Shackman & Kalin 2016 [mechanistic studies in monkeys and their relevance to understanding BI and social anxiety disorder]
- Fox & Walker 2015 [for those hungry to learn more about BI]
- Kagan et al. Science 1988 [for those interested in delving more deeply into BI; seminal study]
- Schwartz et al. Science 2003 [please do not worry about technical aspects of fMRI; for those interested in delving more deeply into BI; seminal study]
- Clauss & Blackford J Amer Acad Child & Adol Psychiatry 2013 [please do not worry about technical aspects of the meta-analysis; for those interested in delving more deeply into BI]
- Mihalopoulos et al. J Child Psychol & Psychiatry 2015 [detailed analysis of what makes for a cost-effective targeted prevention program]

Module 15: Role of the Extended Amygdala in Negative Emotionality, Behavioral Inhibition, and Psychopathology

Required

- Shackman et al J Exp Psychopathol 2016
- Feinstein et al Curr Biol 2011
- Adolphs Ann NY Acad Sci 2010 [addresses the contribution of the amygdala to social cognition]

Optional

- Feinstein et al 2016 [this chapter provides a more detailed description of work with Patient SM, including additional descriptions of her real-world trials and tribulations]
- Fox & Shackman Neurosci Letters in press
- Davis et al Neuropsychopharm 2010
- Fox et al PNAS 2015 [please do not worry about the technical details]
- Etkin & Wager Amer J Psychiatry 2007 [please do not worry about the technical details; seminal meta-analysis]
- Davis & Whalen Mol Psychiatry 2001
- Adolphs et al Nature 1998 [reviewed in lecture and worth skimming]
- Kennedy et al Nat Neurosci 2009 [reviewed in lecture and worth skimming]
- Choi & Kim PNAS 2010 [Robogator! please do not worry about the technical details] [reviewed in lecture and worth skimming]

Module 16: Splitting Negative Emotionality into its Key Constituents (Part 1)

Required

- Grupe & Nitschke Nature Rev Neurosci 2013
- La Rosa Buzzfeed 2014

Optional

- MacLeod & Grafton Beh Res & Ther 2016 [updated review of ABM; make the point that 'target engagement,' that is reductions in attentional biases, are an essential ingredient for positive therapeutic effects]
- Mogg & Bradley Behav Res & Ther 2016 [comprehensive review of ABM work and anxiety-attention more generally]
- Mogg, Waters & Bradley Clin Psychol Sci 2017 [skeptical analysis of the ABM literature with thoughtful methodological recommendations for future work]
- Duits et al Dep and Anx 2015 [please do not worry about the technical details of the meta-analysis] [reviewed in lecture and worth skimming]

Module 17: Splitting Negative Emotionality into its Key Constituents (Part 2)

Required

- Shackman et al Nature Rev Neurosci 2011
- Cavanagh & Shackman J Physiol Paris 2015 [please do not worry about the finer details of the analysis]

SECTION IV: EXTRAVERSION / POSITIVE EMOTIONALITY & CONSTRAINT / SELF-CONTROL

Module 18: Positive Emotionality, Self-Control, and Dopamine (Part 1): Depression and Anhedonia

Required

- Kringelbach & Berridge Sci Amer 2012
- Pizzagalli Ann Rev Clin Psychol 2014
- Smith & Marshall Nature Disease Primers 2016 [infographic on depression]

Optional

- Fleming Intell Life Mag 2015 [journalist hangs out with Kent Berridge for a week]
- Berridge & Robinson Brain Res Rev 1998 [seminal early review]
- Berridge & Robinson Neuron 2015 [seminal recent review]
- The Neurocritic DBS RCT 2015 [popular science blog post on failed randomized clinical trials of deep brain stimulation for major depression]
- Scult Sci Amer 2016 [short blog post on the neural circuitry of reward and neurofeedback training]
- Otte et al Nature Disease Primers 2016 [quick end-to-end primer on major depressive disorder]
- Berridge & Robinson Amer Psychol 2016 [updated mini-review]
- Volkow et al Nature Reviews Neurosci 2017 [comprehensive recent review of depression/addiction relevant circuitry]
- Zald & Treadway Ann Review Clin Psychol 2017 [comprehensive recent review]
- Rizvi et al Neurosci and Biobehav Reviews 2016 [comprehensive review of paper-and-pencil and behavioral measures of anhedonia]

Module 19: Positive Emotionality, Self-Control, and Dopamine (Part 2): Substance Abuse, Impulse Control Disorders, and Everyday Temptation

Required

- Lopez et al. Psychol Sci 2014 [please do not worry about the more technical aspects of fMRI or EMA]
- Hare et al. Sci 2009 [please do not worry about any of the more technical aspects of this complex neuroeconomics study]
- Munro Nature 2015 [infographic on the psychoneurobiology of addiction]
- Yong The Atlantic 2016 [brief popular press piece on the neurobiology of impulsivity and risk aversion]

Optional

- Meurk International J of Drug Policy 2016 [how do addicts think about addiction]
- Lehrer New Yorker 2009 [popular press piece on Walt Mischel]
- Mischel 2015 [Press release for the 2015 Congressional Golden Goose award to Walt Mischel]
- Kotov et al. Psychol Bull 2010 [meta-analysis of associations between T&P and psychopathology; covered in lecture and worth skimming]

- Knutson & Greer Philo Trans Royal Soc B 2008 [review work linking the VS/NAcc to wanting and positive emotionality]
- Berridge & Robinson Brain Res Rev 1998 [seminal early review]
- Berridge & Robinson Neuron 2015 [seminal recent review]
- Duckworth et al. Perspectives on Psychol Sci 2016 [*highly recommended* review focused on strategies for enhancing self-control in the real world; e.g. dieting, planning for retirement, quitting substances, etc.]
- Konnikova New Yorker 2014
- Druckerman New York Times 2014
- Lake Slate 2014 [short popular press piece on the stigma associated with substance abuse and mental illness]

Module 20: Semester Recap

Required

- None

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, hypotheses, and specific predictions as you are reading the Introduction. This will allow you to easily reference the aims as you dig deeper into the Method, Results, and Discussion.
    - 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?
  - **I 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, approach, study design, and sampling strategy a good fit for the aims or is there a gap or limitation of some kind?
  - 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 of T&P?
  - What are the main implications of the findings for theory and for practice?
  - Are there broader implications for our daily lives? Public policy?
- 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?
  - Were important aspects of T&P neglected in the paper?
- Future challenges—What are the most profitable, impactful future steps?

ADDITIONAL COURSE POLICIES

Students are responsible for making themselves aware of the relevant course and University policies. Some of these are described below. Others can be found at http://www.ugst.umd.edu/courserelatedpolicies.html.

Late Policy

Students will lose 10% of total possible points for each day late without prior approval (barring compelling reasons). Prior approval requires at least 48 hours advance notice.

Grade Disputes

In the case of disputed grades, students are required to submit a written claim within 48 hours of receiving the disputed grade that describes the disputed item/grade, rationale for altering the grade, and suggested alteration.

Curving

Your grade will be determined by your individual performance on the exams and written response exercises. The course will *not* be graded on a curve. With the exception of calculation errors, no changes will be made to your final grade at the end of the semester. If earning a particular grade is important to you, please speak with Professor Shackman or the TA at the beginning of the semester so that we can offer some helpful suggestions for achieving your goal.

Final Grade for the Course

Final grades will be assigned in accord with the following rubric

>97 A+
94-96 A
90-93 A-
87-89 B+
84-86 B
80-83 B-
77-79 C+
74-76 C
70-73 C-
67-69 D+
64-66 D
60-63 D-
<60 F

XF-denotes failure due to academic dishonesty.

W indicates withdrawal from a course in which the student was enrolled at the end of the schedule adjustment period. This mark is not used in any computation of quality points or cumulative average totals at the end of the semester.

Course Evaluations

You will have a formal opportunity to evaluate the effectiveness of this course, although I first want to encourage you to schedule a meeting with me (Professor Shackman) if you have any questions, concerns, or suggestions for how we can help support your learning and engagement. Specifically, the University will ask you to evaluate all of your courses through the online system (www.courseevalum.umd.edu) at the end of the semester. As members of the campus learning community your feedback is crucial to the success of our program and therefore to the value of your degree. All I ask is that in evaluating of all your courses you approach it in the same way that you expect instructors to evaluate your performance: be open, honest, and objective.

Academic Integrity

Academic integrity is the foundation of science and the policies will be strictly enforced. **My goal is to protect the value and integrity of the grades that have been fairly earned by the vast majority of students.** Any indication of academic dishonesty (including but not limited to cheating, plagiarism and falsification) will be referred to the Office of Student Conduct (www.osc.umd.edu) without hesitation. You are responsible for reviewing the Department of Psychology's policy statement on academic integrity (http://psychology.umd.edu/about-us/documents/documents/Syllabus_Supplement_on_Ethics_of_Scholarhip_in_Psychology.pdf) for details.

The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student, you are responsible for upholding these standards for this course. It is very important for you to be aware that the consequence for cheating, fabrication, facilitation, and plagiarism in this class is a grade of "F". For more information on the Code of Academic Integrity or the Student Honor Council, please visit: http://www.studenthonorcouncil.umd.edu/whatis.html. The student-administered Honor Code and Honor Pledge prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents and forging signatures.

On every examination, paper or other academic exercise not specifically exempted by the instructor, students must write by hand and sign the following pledge: *I am not a cheater. I completed this with honor.*

Compliance with the code is administered by the Student Honor Council, which strives to promote a community of trust on the College Park campus. Allegations of academic dishonesty should be reported directly to the Honor Council (301-314-8450) by any member of the campus community. For additional information, consult the Office of Student Conduct. For a description of the University's definition of academic dishonesty, suggestions on how to prevent cheating, and practical answers to frequently asked questions about the Code of Academic Integrity, consult the Student Honor Council's webpage and click on the faculty tab.

Accommodations for Disabilities

The campus's Disability Support Service Office (DSS) works with students and faculty to address a variety of issues ranging from test anxiety to physical and psychological disabilities. If an instructor believes that a student may have a disability, DSS should be consulted (4-7682 or dissup@umd.edu). Note that to receive accommodations, students must first have their disabilities documented by DSS. The office then prepares an Accommodation Letter for course instructors regarding needed accommodations. Students are responsible for presenting this letter to their instructors by the end of the drop/add period (www.counseling.umd.edu/DSS).

Medical Absences

For medically necessitated absences: Students may, one time per course per semester, provide a self-signed excuse as documentation of an absence from a single class (e.g., lecture, recitation, or laboratory session) that does not coincide with a major assessment or assignment due date. For all other medically necessitated absences, a course instructor may request that students provide documentation from a physician or the University Health Center to verify an absence. In cases where students are asked to provide verification, the course instructor may request the dates of treatment or the time frame that the student was unable to meet academic responsibilities, but may not request diagnostic information.

Religious Observances

Students will not be penalized because of observances of religious beliefs. Please note that it is your responsibility to notify the instructor by email ASAP regarding any absences for religious observances.

Electronic Devices

I expect you to make the responsible and respectful decision to refrain from the temptation to use your cell phone or other mobile electronic devices, such as tablets and notebook computers in class. If you have critical communication to attend to, please excuse yourself from the room and return when you are finished. If I find myself or other students to be distracted by your behavior, I may ask you to leave the room.

Inclement Weather or Campus Emergency

If the University is closed due to inclement weather or a campus emergency (you can find this out by looking at the campus website http://www.umd.edu or the snow phone line (301-405-SNOW), classroom activities will be cancelled.

Learning Assistance Center

If you are experiencing difficulties in keeping up with the academic demands of this course, you are strongly encouraged to contact the Learning Assistance Service (www.counseling.umd.edu/LAS). Their educational counselors can help with time management, reading, math learning skills, note-taking and exam preparation skills. All their services are free to UM students.

Students in Distress

Services for students in various forms of distress are offered by the Counseling Center and the Mental Health Service in the Health Center. During evenings and weekends, the student peer-counseling hotline (4-HELP or 4-4357) is available. Faculty who wish to consult with professionals may call 4-7651 for immediate assistance. For non-emergency issues, faculty can call the Warmline (4-7653). A therapist will respond within a few hours.

ABOUT THE COURSE

Professor Alex Shackman

Dr. Shackman is an Assistant Professor in the Department of Psychology & Neuroscience (Clinical & CNS Area Groups), a member of the executive board for the interdepartmental Neuroscience and Cognitive Science (NACS) Program, a core faculty member of the Maryland Neuroimaging Center (MNC), and the Director of the Affective and Translational Neuroscience Laboratory at the University of Maryland. His work is supported by the NIMH (R01-MH107444, 2016-21) and NIDA (R21-DA040717, 2016-18) and has led to more than 60 papers and chapters. Dr. Shackman is Co-Editor of *The Nature of Emotion* (Oxford University Press), serves as Associate/Consulting Editor at several journals (e.g., *Emotion*), and has co-edited two special issues focused on the neurobiology of emotional states, traits, and disorders. He regularly chairs symposia at international scientific meetings and regularly lectures at other institutions around the world. Dr. Shackman is an active member of the Hierarchical Taxonomy of Psychopathology (HiTOP) consortium, helped organize the SOBP annual meeting for 3 years, and frequently reviews grant applications for the NIH and NSF. To learn more about his lab, please visit http://shackmanlab.org.

Acknowledgements

This course was developed more or less from scratch by Dr. Shackman, but it owes a heavy debt of gratitude to a number of individuals, including Dr. June Gruber (Boulder), Dr. Leah Somerville (Harvard), Tara Augenstein, Dr. Hill Goldsmith (Wisconsin), Dr. Heather Abercrombie (Wisconsin), Dr. Brad Bushman (OSU), Dr. Brent Roberts (UIUC), Dr. Rebecca Shiner (Colgate), Dr. Koraly Perez-Edgar (Penn State), Dr. Ned Kalin (Wisconsin), Dr. Richie Davidson (Wisconsin), Gloria Kim (Maryland), Dr. Jason Smith (Maryland), Dr. Dave Yager (Maryland), Dr. Scott Roberts (Maryland), Dr. Ryan Curtis (Maryland), and Dr. Andrew Fox (Davis). The feedback that I have received from students enrolled in prior semesters has also proven invaluable for refining and strengthening the course.