

**Washington University School of Medicine  
Master of Population Health Sciences  
PSYCHIATRIC AND BEHAVIORAL HEALTH SCIENCES CONCENTRATION**

**M19-562 Addictions and Addictive Behaviors (3 credits)**

**Spring 2020 (01/16/20 – 04/30/20)**

Thursdays, 1:00 – 4:00 pm

Location: Taylor Avenue Building (TAB) 2nd floor, Richmond Room, Medical Campus

**SYLLABUS<sup>1</sup>**

**INSTRUCTORS**

Rumi Kato Price, PhD, MPE (Interim Course master, [pricerk@wustl.edu](mailto:pricerk@wustl.edu))  
Richard (Rick) Grucza, PhD, MPE (Co-Instructor, [rick@wustl.edu](mailto:rick@wustl.edu))  
Ned Presnall, MSW, LCSW (Statistical Consultant for Student Projects,  
[npresnall@gmail.com](mailto:npresnall@gmail.com))

**MPHS FACULTY LECTURERS**

Arpana Agrawal, PhD, Professor of Psychiatry, Department of Psychiatry, Washington University School of Medicine  
Kathleen B. Bucholz, PhD, MPH, MPE, Professor of Psychiatry, Department of Psychiatry, Washington University School of Medicine  
Li-Shiun Chen, MD, MPH, ScD, Associate Professor of Psychiatry, Department of Psychiatry, Washington University School of Medicine

**GUEST LECTURERS** (alphabetical listing): <sup>2</sup>

Jacob Borodovsky, PhD, Postdoctoral Researcher, Department of Psychiatry, Washington University School of Medicine  
Matthew Ellis, MPE, Clinical Lab Manager and PhD Candidate, Department of Psychiatry, Washington University School of Medicine  
Carrie Mintz, MD, Instructor in Psychiatry, Washington University School of Medicine  
Andrew Plunk, PhD, Associate Professor of Pediatrics, Eastern Virginia Medical School  
Ned Presnall, MSW, LCSW, Owner and Director at Plan Your Recovery; Adjunct Faculty, Brown School, Washington University  
Alex T. Ramsey, PhD, Assistant Professor of Psychiatry, Department of Psychiatry, Washington University School of Medicine  
Jeffery Scherrer, PhD, Associate Professor, Department of Family and Community Medicine, Saint Louise University Center for Health Outcomes Research  
Rachel Winograd, PhD, Associate Professor (Research), Missouri Institute for Mental Health, University of Missouri Saint Louis

**PREREQUISITES** M19-501 Introductory Clinical Epidemiology, M19-510 Introductory Biostatistics, M19-510 Introduction to SAS; or equivalent; or course master approval

**TARGET AUDIENCE** This course is suited for postgraduate scholars, fellows, medical students, and

1. The content of this syllabus is subject to change.
2. Guest lectures are subject to availability of lecturers.

graduate students with interest or experience in addiction research and methodology and/or those interested in pursuing clinical research career in addiction.

**COURSE DESCRIPTION & OBJECTIVES:** The objective of this course is to help students develop skills required to design research projects in the area of addiction science. This is accomplished by fostering a broad understanding of addiction and addictive behaviors in the population, spanning all levels of science from molecular genetics to drug policy. Students will be introduced to the epidemiology of substance use disorders and methods, including diagnostic criteria and their assessment, for in-depth understanding of surveys of substance use and associated disorder. Reviews and/or overviews of basic science aspects will include basic pharmacology, heritability and genetics, and genomic science. These concepts will then be related to more specialized topics, including drug policy, treatment, recovery, and implementation research.

**Format:** The class format will be broadly divided into 1 to 1.5-hour lectures that cover the core topics followed by a dry lab and discussion period during which students will work on a group project that will be developed into a publishable manuscript.

**COMPETENCIES:** At the end of this course, the student will be able to:

1. Define addiction and identify its core features and diagnostic criteria; describe the evolution of diagnostic criteria, differentiate between problematic use and dependence.
2. Identify sources of data for describing the contemporary and historical epidemiology of alcohol, drug and tobacco use; evaluate the methods used to obtain such data, their strengths and limitations.
3. Describe the role of genetics in addiction and the relations between heritability and molecular genetics.
4. Describe key environmental influences on addiction and recovery, including social and policy factors.
5. Develop hypotheses that utilize the above competencies and specify methods and data sources to test such hypotheses.

### **ATTENDANCE, PARTICIPATION AND ASSIGNMENTS**

1. Attendance is required for all classes. Students are expected to arrive on time, unless permitted by advanced arrangement. Planned absences will need consent in advance by the course master, such as religious holidays and career development activities. More than two unexcused absences from class may result in a lowered grade; students who miss more than four classes may be asked to withdraw from the class.
2. In-class conduct: Use of cell phones, texting, emails, and web surfing, unrelated to class activities, are prohibited during lectures and student presentations, except for emergencies. This course may be audiotaped photographed for educational purposes.
3. Reading materials: Readings or other media assignments should be completed before each lecture. Articles or links to articles will be posted on Canvas in advance of each lecture. Some citations to assigned readings are provided in advance but these are subject to change. Up to three surprise quizzes will be given in class
4. Student participation: This will consist of either informal discussions or semi-formal student presentations. Students will need to prepare as directed by the course master during the prior week's class and/or by e-mail.
5. Class project and periodic assignments: The primary assignment is the class project completion and a written draft of a publishable manuscript. Periodic assignments will be given as the project progresses and will involve reading, summarizing and criticizing extant literature, and/or manuscript in development.

**Text:** There is NO required text. It is recommended that you read one of the supplemental texts at your own pace as you take the course. This is a project-oriented course with limited lecture time. Therefore, self-directed readings of material in your areas of interest are important.

**POLICY ON LATE ASSIGNMENTS:** Late assignments may result in a deduction of one grade point (A+ down

to A) for each day they are late unless prior approval is obtained from the instructor or a compelling situation prevents prior approval (i.e. documented health issues or family emergencies).

**GRADING: Letter grade or Pass/Fail with course master's permission.** Course activities and student products include lectures, class participation, assignments, and final group project manuscript draft.

Your grade will be based on:

- Class attendance (20%)
- Student in-class participation and reading discussion (20%)
- Periodic assignments (20%)
- Final class project – written format (40%)

**Grading Scale:** A+: 97-100; A: 93-96; A-: 90-92; B+: 87-89; B: 83-86; B-: 80-82; C+: 77-79; C: 73-76; C-: 70-72. Total of 100 will be converted to letter grades according to the established norm; grades will not be normalized. Pass/Fail is optional but requires advance permission from the course master.

**DROP DATES**

You may drop for any reason during the course of the semester. However, you may only receive a partial or no tuition reimbursement depending upon how far into the semester you drop the course. See the [MPHS Student Handbook](#). Late withdrawals will appear on your transcript as a withdrawal.

**COURSE SCHEDULE AND ASSIGNMENT DUE DATES**

**SEGMENT I. What is Addiction? How Do We Define and Measure It?**

<b>Week 1: Thursday, January 16, 2020</b>	
<b>Lecture: Neurobiology of addiction</b> <ul style="list-style-type: none"> <li>○ Introduction and review of the course and materials</li> <li>○ <b>Carrie Mintz, MD</b></li> </ul>	<b>Class Project: The scientific process and planning</b> <ul style="list-style-type: none"> <li>○ Faculty and the class will discuss the manuscript plan, required tasks, and timeline</li> </ul>
<b>Week 2: Thursday, January 23, 2020</b>	
<b>Lecture: Diagnostic criteria for substance use disorders</b> <ul style="list-style-type: none"> <li>○ <b>Kathleen B. Bucholz, PhD, MPH, MPE</b></li> </ul>	<b>Class Project: Where is the knowledge gap in the Literature?</b> <ul style="list-style-type: none"> <li>○ Students will present their literature review results, identified knowledge gaps, and potential testable hypotheses</li> </ul>
<b>Week 3: Thursday, January 30, 2020</b>	
<b>Lecture: Epidemiological studies and survey methods</b> <ul style="list-style-type: none"> <li>○ <b>Richard Grucza, PhD, MPE</b></li> </ul>	<b>Class Project: The impact and feasibility of research questions</b> <ul style="list-style-type: none"> <li>○ Faculty and students will discuss and select a testable central hypothesis and appropriate database for research</li> </ul>
<b>Week 4: Thursday, February 6, 2020</b>	
<b>Lecture: Multivariate methods</b> <ul style="list-style-type: none"> <li>○ <b>Jacob Borodovsky, PhD</b></li> </ul>	<b>Class Project: Writing the introduction and hypotheses</b> <ul style="list-style-type: none"> <li>○ Synthesize the literature</li> <li>○ Decide on central questions and dataset to analyze</li> <li>○ Present the Introduction section in class</li> <li>○ Submit a written Introduction section</li> </ul>

**SEGMENT II. Heritability and Genetics**

<b>Week 5: Thursday, February 13, 2020</b>	
<b>Lecture: Genetic studies of addiction</b> ○ Arpana Agrawal, PhD	<b>Class Project: Methods and analyses I</b> ○ Students discuss and formulate methods and preliminary analysis results
<b>Week 6: Thursday, February 20, 2020</b>	
<b>Lecture: Genomics of addiction</b> ○ Li-Shiun Chen, MD, MPH, ScD	<b>Class Project: Methods and analyses II</b> ○ Students present methods and preliminary analysis results
<b>Week 7: Thursday, February 27, 2020</b>	
<b>Lecture: Addiction precision medicine</b> ○ Li-Shiun Chen, MD, MPH, ScD	<b>Class Project: Methods and analyses III</b> ○ Students present methods and preliminary analysis results

### SEGMENT III. Policy and Implementation

<b>Week 8: Thursday, March 5, 2020</b>	
<b>Lecture: Methods for addiction policy</b> ○ Richard Grucza, PhD, MPE	<b>Class Project: Methods and analyses IV</b> ○ Students finalize analysis results. ○ Present the Methods section in class ○ Submit a written Method section
<b>Week 9: Thursday, March 12, 2020 - NO CLASS, SPRING BREAK</b>	
<b>Week 10: Thursday, March 19, 2020</b>	
<b>Lecture: Local policy and community engagement</b> ○ Andrew Plunk, PhD	<b>Class Project: Present primary findings</b> ○ Students will present primary findings in tables and figures for feedbacks ○ Submit primary findings, tables and figures
<b>Week 11: Thursday, March 26, 2020</b>	
<b>Lecture: Implementation science in addiction research</b> ○ Alex Ramsey, PhD	<b>Class Project: Present secondary findings</b> ○ Students will present secondary findings in tables, figures or in other formats for feedbacks ○ Submit secondary findings, tables, figures, or in other formats

### SEGMENT IV. Current Topics

<b>Week 12: Thursday, April 2, 2020</b>	
<b>Lecture: Big data research</b> ○ Jeffery Scherrer, PhD	<b>Class Project: Finalize results</b> ○ Students will present the complete Results section with tables and figures for feedbacks ○ Submit a written Results section
<b>Week 13 Thursday, April 9, 2020</b>	
<b>Lecture: Medication treatment</b> ○ Ned Presnall, MSW, LCSW	<b>Class Project: Research finding implications</b> ○ Students will present key findings and implications
<b>Week 14: Thursday, April 16, 2020</b>	
<b>Lecture: Cannabis policy</b> Jacob Borodovsky, PhD	<b>Class Project: How does the finding fill the knowledge gap</b> ○ Students will present how these findings extend knowledge

	<p>in the addiction field and limitations of the study in the Discussion section</p> <ul style="list-style-type: none"> <li>○ Submit a written Discussion section</li> </ul>
<b>Week 15: Thursday, April 23, 2020</b>	
<b>Lecture: Lecture: Harm reduction: response to the opioid crisis</b>	<b>Class Project: Consultation and feedback</b> <ul style="list-style-type: none"> <li>○ Putting sections together; rewrite and edit</li> </ul>

## FINALS

<b>Week 16: Thursday, April 30, 2020</b>	
<b>No lecture</b>	<b>Class Project: Manuscript finalizing and submission</b> <ul style="list-style-type: none"> <li>○ Faculty and students review the final manuscript draft and prepare for journal submission</li> <li>○ Potluck lunch?</li> </ul>

### Supplemental Text Recommendations:

McKim, William A, and Stephanie D Hancock. *Drugs and Behavior: An Introduction to Behavioral Pharmacology*. Prentice Hall Upper Saddle River, NJ. Older (less expensive) versions are sufficient. The 8<sup>th</sup> edition is published by Person, 2017. Highly recommended for those without a basic science background. (For those interested in advanced behavioral pharmacology, search for Meyer and Quenzer).

Levinthal, Charles F. *Drugs, Behavior, and Modern Society*. Pearson Education New Zealand. 8<sup>th</sup> Edition, 2014. Like McKim, this is a standard textbook for Addiction courses.

West, Robert, and Jamie Brown. 2013. *Theory of Addiction*. John Wiley & Sons. Theory oriented with more of a psychology focus. 2<sup>nd</sup> Edition (2009) will be available in pdf in Canvas.

Erickson, Carlton K. 2007. *The Science of Addiction: From Neurobiology to Treatment*. WW Norton & Company. Focus is on basic science, genetics and treatment. Easy to read.

Goldstein, Avram. 2001. *Addiction: From Biology to Drug Policy*. Oxford University Press. Very broad focus, somewhat out of date, but information still relevant. Also fairly easy to read.

### **ACADEMIC INTEGRITY/PLAGIARISM POLICY:**

Academic dishonesty is a serious offense that may lead to probation, suspension, or dismissal from the University. Academic dishonesty includes plagiarism (the use of someone else's ideas, statements, or approaches without proper citation). Academic dishonesty also includes copying information from another student, submitting work from a previous class for a new grade without prior approval from your instructor, cheating on exams, etc. You are responsible for reviewing [WashU's academic integrity resources](#) to become aware of all the actions that constitute academic dishonesty.

All instances of academic dishonesty will be reported to the Office of the Registrar for investigation and potential disciplinary action. In addition, the instructor will make an independent decision about the student's grade on any assignment in question. The MPHS process regarding academic dishonesty is described in the [MPHS Student Handbook](#)

### **DISABILITY RESOURCES**

It is the goal of Washington University to assist students with disabilities in removing the barriers their disabilities may pose and provide support in facing the challenge of pursuing an education at Washington University.

Washington University recognizes and accepts its professional, legal and moral responsibility to avoid discrimination in the acceptance and education of qualified students with disabilities and to provide reasonable accommodations to such students consistent with the principles embodied in the law. These guidelines apply to students seeking admittance as well as to those who become disabled while they are enrolled.

Washington University makes every effort to insure that all qualified applicants and students can participate in and take full advantage of all programs and opportunities offered within the university. Washington University encourages and gives full consideration to all applicants for admission. Washington University does not discriminate in access to its programs and activities on the basis of age, sex, sexual orientation, race, disability, religion, color or national origin.

To learn more about services provided to students with disabilities, initiate the process of formal documentation and/or to arrange for accommodations, please review the [Disability Resources](#) for the Med School at the start of the course.

### **MENTAL HEALTH RESOURCES**

Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See: [shs.wustl.edu/MentalHealth](https://shs.wustl.edu/MentalHealth).

### **SEXUAL ASSAULT RESOURCES**

You can also speak confidentially and learn about available resources by contacting [Dr. Gladys Smith, PhD](#), Sexual Violence Prevention Therapist and Licensed Psychologist at the Medical Campus, (314) 362-2404. Additionally, you can report incidents to the Office of Student Affairs or by contacting WUSM Protective Services 314-362-4357 or your local law enforcement agency.

### **BIAS RESOURCES**

The University has a process through which students and staff who have experienced or witnessed bias, prejudice or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. For details see: [diversityinclusion.wustl.edu/brss/](https://diversityinclusion.wustl.edu/brss/).

### **Office of the Associate Vice Chancellor for Diversity, Equity and Inclusion (DEI)**

**The DEI Training Team** designs, facilitates and leads diversity education programming for faculty, staff and students on a wide range of topics including: creating a climate of respect, the value of diversity and the role of biases in our day-to-day lives. [diversity.med.wustl.edu/training/](https://diversity.med.wustl.edu/training/)

**The Office of Diversity Programs** promotes diversity among and prepares medical students to lead in a global society. A priority for the Office of Diversity Programs is to cultivate and foster a supportive campus climate for students of all backgrounds, cultures and identities. [mddiversity.wustl.edu/](https://mddiversity.wustl.edu/)

**The Diversity and Inclusion Student Council** promotes an inclusive campus environment for all School of Medicine students. [sites.wustl.edu/disc/](https://sites.wustl.edu/disc/)

**The Office for International Students and Scholars** embraces the university's mission of welcoming promising students from around the world. [wumma.wustl.edu/](https://wumma.wustl.edu/)

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