Addictions and Addictive Behaviors
M19-562 / MPHS: PSYCHIATRIC AND BEHAVIORAL HEALTH SCIENCES CONCENTRATION

Spring 2018
Preliminary Syllabus

Dates: 1/18/2018-5/4/2017

Time: Thursday, 1-4 pm

Location: Room 2133, Taylor Avenue Building

Instructors: Rick Gruca Ph. D. (Coursemaster)
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Lecturers: Arpana Agrawal, Ph. D., Kathy Bucholz, Ph. D., Sarah Hartz, MD, Ph.D

Guest Lecturers: Alexis Duncan, Ph. D., Patricia Cavazos-Rehg, Ph. D., Alex Ramsey, Ph. D.;
Ned Presnall, M.S.W.

Office Hours: By Appointment

Prerequisites: M21-560 Biostatistics I or equivalent, or coursemaster approval.

Course Credits: 3

Grading: Letter for MPHS Psychiatric and Behavioral Health Sciences Concentration students.
Choice of Letter or Pass/Fail for others.

Course description: 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 behavior 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 for surveying substance use and associated disorder. Diagnostic criteria and their assessment in the general population will be introduced. Reviews and/or overviews of basic science will be presented, including discussions of basic pharmacology, heritability and genetics. These concepts will then be related to more specialized topics, including drug policy, treatment, and recovery.

Format: The class format will be broadly divided into one-hour formal lectures that cover the core topics followed by a lab and discussion period during which students will work on a group project that will be developed into a publishable manuscript. Depending on enrollment size, this will be a single project that the entire class participates in.
Students will be expected to participate in class discussions, informally present material related to the class project and contribute to the final project product through writing, data analysis, presentation of results, or a combination of these.

Assignments: The primary assignment is the class project. Periodic assignments will be given as the project progresses and will involve reading, summarizing and criticizing extant literature.

Student Requirements for the course:

1. **Attendance** is required for all classes. We understand that professional conferences, illness, and family situations arise. If you are unable to attend class, please e-mail the coursemaster as far in advance as possible.

2. **Readings** or other media assignments should be completed before each lecture. Articles or links to articles will be posted on blackboard in advance of each lecture. Some citations to assigned readings are provided in the syllabus but these are subject to change.

3. **Participation** is expected of each student. This will consist of either informal discussions or semi-formal student presentations. Students will need to prepare as directed by the lecturer during the prior week’s lecture and/or by e-mail.

4. **Assignments**: See above.

Objectives: 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.

Text: There is NO required text. Supplemental text recommendations will be provided in an updated syllabus prior to the course.

COURSE OUTLINE. (Note Lecture and Lab Schedules are presented separately). These schedules are preliminary and subject to change.

Lectures

**WEEK 1**: 1/18/2018. Agrawal. *Neurobiology of addictions*

**WEEK 2**: 1/25/2018. Bucholz. *Diagnostic Criteria for Substance Use Disorder*


WEEK 5: 2/15/2017. Agrawal. *Genetic studies of addiction*

WEEK 6: 2/22/2018. TBD (Instructors at SRNT).

WEEK 7: 3/1/2018. Chen/Hartz. *Candidate genes and genomics,*


(Note: This is Spring Break for Main Campus).


   NO LAB

WEEK 15: 4/26/2018. Lab Only

WEEK 16: 5/5/2015. Lab Only
Overview:
Faculty will work with students to review literature, generate hypothesis, conduct data analyses, and complete a group manuscript. The goal is to complete a manuscript on Addiction for submission to a scientific journal (e.g. Drug and Alcohol Dependence) in 5/2018.

Learning Objectives:
1) Students will gain state of the art knowledge on critical reviews of literature, generating testable hypotheses, data analyses, and scientific manuscript writing.
2) Students will gain knowledge and experience on addiction research and journal submission.

Manuscript Topic Examples: To be distributed prior to first week of class.

Available Research Databases: To be distributed prior to first week of class.

Literature Searches:
1. Each student will conduct literature searches and present 2-3 relevant papers on a selected topic on addiction. Discuss knowledge gaps in important public health topics based on the literature review.
2. The class will select a central hypothesis for the group manuscript and write an introduction to summarize relevant literatures for the central hypothesis.

Manuscript Outlines
1. Introduction
   a. Describe an important public health topic
   b. Review existing literatures on this topic
   c. Define knowledge gaps
   d. Describe central and specific hypotheses and data which will be used for research
2. Methods
   a. Sample
   b. Assessment
   c. Analysis
3. Results
   a. Sample characteristics (Table 1)
   b. Finding 1
   c. Finding 2
   d. Finding 3
4. Discussion
   a. Summarize the major findings
   b. Integrate findings with existing evidence
   c. Discuss additional findings
d. Discuss limitations
e. Describe implications and future directions

Target Journal for Submission
Drug and Alcohol Dependence or other journals in addiction sciences

Authorship Guidelines
First Author(s): 1 -3 volunteers
Primary responsibility; organize references, submission(s). Be available for revision, resubmission.

Middle authors (alphabetized)

Last Authors: Course Faculty

Timeline and Milestones
1/18/18 Week 1: Addiction: The Scientific Process and Planning
Faculty and the class will discuss the manuscript plan, required tasks, and timeline.

1/25/18 Week 2: Addiction: Where is the knowledge gap in the Literature?
Students will present their literature review results, identified knowledge gaps, and potential testable hypotheses.

1/2/18 Week 3: Addiction: The impact and feasibility of research questions
Faculty and students will discuss and select a testable central hypothesis and appropriate database for research.

2/8/18 Week 4: Addiction: Writing the introduction and hypotheses
Synthesize the literature and present the Introduction section

2/15/18 Week 5: Addiction: Methods and Analyses I
Students present analyses results and methods.

2/22/18 Week 6: Addiction: Methods and Analyses II
Students present analyses results and methods

3/1/18 Week 7: Addiction: Methods and Analyses III
Students present analyses results and methods

3/8/18 Week 8: Addiction: Methods and Analyses IV
Students finalize analyses results and present the Methods section

3/15/18 Week 9: Addiction: Present the primary finding
Students will present the primary findings in tables and figures for feedbacks

3/22/18 Week 10: Addiction: Present secondary findings
Students will present secondary findings in tables and figures for feedbacks

3/29/18 Week 11: Addiction: Present additional findings
Students will present additional findings in tables and figures for feedbacks

4/5/18  **Week 12: Addiction: Finalize Results**  
Students will present the complete Results section with tables and figures for feedbacks

4/12/18  **Week 13: Addiction: Research finding implications**  
Students will present key findings and implications.

4/19/18  **Week 14: Addiction: How does the finding fill the knowledge gap**  
Students will present how these findings extend knowledge in the addiction field.

4/26/18  **Week 15: No Lab**

5/3/18  **Week 16: Addiction: Manuscript Finalizing and Submission**  
Students present the Discussion section including limitations and future directions  
Faculty and students review the final manuscript draft and prepare for journal submission.