

**Department of Health Outcomes and Biomedical Informatics  
College of Medicine  
University of Florida**

Semester: Spring 2020

Time: Thursdays, 3:00 pm to 4:55 pm (P. 8-9)

Location: Clinical and Translational Research Building (CTRB), Room 3161

Credits: 3

Instructors:

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### **COURSE DESCRIPTION**

Quality improvement and implementation of evidence-based practices are critical for addressing gaps in the delivery and effectiveness of health care. Translating research into practice is a complex process that involves engagement from multiple stakeholders (including clinicians, patients and families, and communities), which facilitates the adoption of evidence-based interventions into health care and community settings and contributes to the sustainability of interventions. Implementation science seeks to: (1) understand the barriers and facilitators that influence successful implementation of effective interventions, (2) design strategies to foster the adoption of best practices, and (3) enhance the extent to which intervention research is generalizable, representative, and ultimately scalable. Combined with implementation science, more rigorous dissemination efforts, beyond traditional academic venues, are needed to increase outreach into real-world settings.

This course provides a framework for examining improvement and implementation science and its application to clinical and community-based research. Because improvement and implementation science are rooted in real world clinical and community settings, the focus of the course is twofold:

- First, the course focuses on **examining different study designs in improvement and implementation science**, and the strengths and limitations of different methodological approaches.
- Second, the course provides **real world experience** for the students by pairing them with a clinician and a researcher to design an improvement and implementation science approach and dissemination activities to address an actual clinical concern.

**To meet these objectives, students will to develop an implementation science proposal that addresses a real world clinical issue in consultation with a practicing clinician and a researcher.** Students already conducting research that could benefit from improvement and implementation science may choose to select their own topics and collaborators. Students may also select from a list of topics generated through the Clinical and Translational Science

Institute (CTSI) Learning Health System-Implementation Science (LHS-IS) Program, the Quality Improvement Project Registry (QIPR), and other UF Health initiatives. The engagement of clinicians is essential to the process to ensure that the topics reflect critical health issues facing our patients. The engagement of researchers is essential to ensure that the appropriate scientific expertise is available to guide the development of the implementation science proposal.

During the course, the students will develop their projects in consultation with clinicians and researchers and engage in didactic classroom sessions. At the end of the semester, students will present their projects to members of the CTSI leadership team, UF Health, and Faculty Group Practice.

### **STUDENT CONSULTATIONS WITH CLINICIANS AND RESEARCHERS**

In the first two weeks of the course, students will be given a list of potential implementation science topics that are important to UF Health Clinicians, Citizen Scientists, and researchers. The names of the clinicians and researchers who lead studies on these topics also will be provided to the students. To assist students in understanding what to expect from this collaboration, the following guidelines are provided.

#### **Consultation with Clinicians**

- 1) Students will prepare a PowerPoint presentation to discuss with the clinician that describes the purpose, aims and suggested interventions to promote the uptake of the evidence-based best practices.
- 2) The student will develop an interview guide to solicit feedback from the clinician about: (a) adaptations that should be considered before the protocol could be implemented in a clinical setting, (b) barriers that may be encountered, and (c) strategies that could facilitate implementation.
- 3) Students are expected to spend 1-2 hours total (scheduled at the location and time most convenient for the clinician) during the semester to present the proposal to the clinician and obtain feedback.
- 4) For any papers or presentations that are developed, the clinician will be included as one of the authors.

#### **Consultation with Researchers**

- 1) Every attempt will be made to pair students with researchers who are investigators on the study topic they have selected. Students may also be paired with researchers teaching the class and/or who are already serving as mentors to the students.
- 2) If the student is working with one of the faculty teaching the class or his/her mentor, the student is expected to develop a schedule for obtaining feedback with the course instructor or mentor.
- 3) If the student is assigned to a faculty member who is associated with the implementation science topic but is not already a mentor, the student is expected to follow the same steps listed under the consultation with the clinicians.

## AUDIENCE

The course is designed for advanced masters-level and doctoral-level students in health outcomes, biomedical informatics, medicine, public health, and other health professions, as well as advanced students in public policy, sociology, psychology or other social sciences with plans for a career in health research. Prerequisites are GMS 6851 (*Fundamentals of Dissemination and Implementation Research*) and permission of the instructor.

## COURSE GOALS

The primary goals of this course are to enhance students': (1) knowledge of improvement and implementation science; (2) ability to critically evaluate studies focused on improvement and implementation science; and (3) real-world experience in designing an implementation science study. More specifically, students who successfully complete the course will be able to:

1. Discuss the theoretical underpinnings of improvement and implementation science,
2. Explain barriers and facilitators to implementation and dissemination of research findings and methods to address those barriers,
3. Describe the major categories of study designs that are used in conducting improvement and implementation science and the role of and strategies for engaging key stakeholders, and including clinicians and policymakers in the research process,
4. Describe the importance of contextual factors and assessing multiple outcomes when designing improvement and implementation science studies, and
5. Critically evaluate improvement and implementation science studies by assessing the strengths and limitations of the study design and measures selected for informing health care decision-making in real world settings.

Students will use the information from learning objectives 1 through 5 to engage with a practicing clinician and a researcher in the design of an implementation science study that addresses a real world clinical issue.

## COURSE EVALUATION

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals.

Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

## METHODS OF INSTRUCTION

We will operate as an advanced graduate seminar, with students taking an active role in initiating and leading discussions and presenting their implementation science study progress. Attendance and active participation in all class discussions is required, and will be evaluated as part of the student's grade for the course. Students must read the required readings prior to each discussion session.

### Tests

No exams will be given in this graduate-level seminar course.

### *Term Paper / Proposal Development (See additional information at the end of the syllabus)*

As described in the course introduction, students will develop a written implementation science proposal in collaboration with a clinician and a researcher. The proposal will contain the following sections:

- 1) **Specific Aims** – What is the critical clinical issue, the setting and the patient population? What evidence-based intervention for this issue will be the focus of your study? What factors have contributed to the failure and/or success of implementing the intervention in clinical settings? What **impact** would the successful implementation of this intervention have on patient outcomes (clinical, health related quality of life)? Costs? Clinician satisfaction and engagement?
- 2) **Research Strategy**
  - a. Significance: Describe in more detail the clinical issue and the evidence base for the intervention. Select and describe an appropriate conceptual framework to guide your study aims and hypotheses, study design, and interpretation of findings. Describe the anticipated barriers to implementation in *your* practice setting, and discuss evidence-based strategies to address these barriers.
  - b. Innovation: Explain how the application challenges and seeks to shift current research or clinical practice paradigms
  - c. Approach:
    - i. Description of the study setting
    - ii. Description of the study population
    - iii. Implementation science design
    - iv. Sample size considerations
    - v. Specification of study variables
    - vi. Intervention strategies in the clinical setting
    - vii. Data collection plan
    - viii. Data analysis plan
  - d. Strengths and limitations of the approach
  - e. Dissemination plans
- 3) **Literature cited**
- 4) **Human Subjects consideration**
  - a. IRB protocol approval statement
  - b. Inclusion of women, children, and minorities
- 5) **Data sharing plans**
- 6) **Data safety and monitoring plans**

### *Interim and Final Presentation guidelines*

You should prepare a well-designed set of slides in a PowerPoint file, which you will use during your presentations and will email to the entire class and the attendees (according to an attendee list that will be provided to you) at least 2 business days before your presentation. Design each visual carefully to illustrate the main points. Remember the rules for clear, easy to understand, and interesting slides: No more than 8 words per line, and no more than 8 lines on a slide; prevalent use of diagrams, charts, etc. to illustrate points; minimize the number of word-only slides; and aim for about one slide per minute.

You are expected to work with the clinician and researcher with whom you are collaborating to develop your presentations. It is not expected that your collaborators attend the presentations if their other professional commitments do not permit their attendance. However, you are required to invite them and hopefully they can attend.

### *Reading Assignments*

The following will be used to assess students' progress in achieving the course objectives:

**Readings and Class Discussions.** You must read the assigned readings prior to each discussion session and be prepared to discuss your reactions, thoughts, analysis, comments and questions on the main issues raised in the readings. Share what strikes you as new, unexpected, or particularly important. Discuss implications of that reading for your scientific work. All students are expected to participate in each discussion session.

### **EVALUATION AND GRADING**

Grades will be based on attendance and participation in discussions (20%); consultation Powerpoint (5%), consultation interview guide (5%), and consultation meeting notes (5%); Interim Presentation (15%); Implementation Science Proposal (30%); and Final Presentation (20%). All deadlines must be met. Any assignment turned in after the deadline will receive one grade below what it would have earned had it been submitted on time. Grades will be assigned as follows:

<u>Letter Grade</u>	<u>Grade Points</u>	<u>Grade Percentage</u>
A	4.0	95-100
A-	3.67	90-94
B+	3.33	87-89
B	3.0	83-86
B-	2.67	80-82
C+	2.33	77-79
C	2.0	73-76
C-	1.67	70-72
D+	1.33	67-69
D	1.0	63-66
D-	.67	60-62
E	0	59 and below

For additional grading policy information, you may visit the undergraduate catalog web page at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

## COURSE POLICIES AND RESOURCES

Students are expected to adhere to the following course policies.

### *Class Attendance*

Class attendance is required. Excused absences follow the criteria of the UF Graduate Catalog (e.g., illness, serious family emergency, military obligations, religious holidays), and should be communicated to the instructor prior to the missed class day when possible. University of Florida rules require attendance during the first two course sessions, and students must attend all course sessions of student presentations for this class. Missing more than three scheduled sessions will result in a failure. Regardless of attendance, students are responsible for all material presented in class and meeting the scheduled due dates for class assignments. Finally, students must read the assigned readings *prior to* the class meetings, and be prepared to discuss the material. For more information, please visit:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### *Class Decorum*

Please be on time and respect others' points of view. For in-person sessions and all presentations, please listen quietly when others are speaking, and turn off cell phones, alarms, and other such distractions.

## CANVAS

Course information, readings, lectures, and grades are available on Canvas at <http://lss.at.ufl.edu/>. You must have a Gatorlink account to log on. *You will access the web site on a weekly basis to access readings, and to view assigned lecture videos (during weeks when videos are assigned).*

### **Getting Help**

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at: [learning-support@ufl.edu](mailto:learning-support@ufl.edu) or by calling (352) 392-HELP - select option 2.

Additional information is available at: <https://lss.at.ufl.edu/help.shtml>

### *Returned Assignments*

Keep copies of all assignments that you submit and of all grades until you receive official notification of your final course grade.

### *Policy on Make-Up Work*

Students are allowed to make up work only as the result of illness or other unanticipated circumstances. In the event of such emergency, documentation will be required in conformance with university policy. Work missed for any other reason will earn a grade of zero.

### *Accommodations for Students with Disabilities*

Students requiring accommodations must first register with the Dean of Students' Office. The Dean of Students' Office will provide documentation to the student who must then provide this documentation to the faculty member when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

### ***Counseling and Mental Health Services***

Please visit the UF counseling center website for information regarding appointments:  
<https://counseling.ufl.edu/> or call (352)392-1575

### ***UF Police Department***

For Campus Police, please call the UF Police Department at 352)392-1111  
For **all** emergencies and medical assistance, please call 911.

### **TEXTBOOK**

Brownson, R.C., Colditz, G.A. & Proctor, E.K. (Eds). *Dissemination and Implementation Research in Health: Translating Science to Practice*, 2nd Edition. New York: Oxford University Press, 2018.

### **SCHEDULE OF TOPICS AND READINGS**

#### **Week 1 - Introduction to Improvement and Implementation Science**

##### **Discussion session - Jan. 9**

##### Readings:

- Chapter 1: Colditz, GA & Emmons, KM. The promise and challenges of dissemination and implementation research.
- Chapter 2: Rabin, B.A. & Brownson, R.C. Terminology for dissemination and implementation research.
- Chambers DA, Feero WG, Khoury MJ. Convergence of Implementation Science, Precision Medicine and the Learning Health Care System: A new Model for Biomedical Research. *JAMA*. 2016 May 10;315(18):1941-2. doi: 10.1001/jama.2016.3867.PMID: 27163980
- Shaw RJ, Kaufman MA, Bosworth HB, et al. Organizational factors associated with readiness to implement and translate a primary care based telemedicine behavioral program to improve blood pressure control: the HTN-IMPROVE study. *Implementation Science : IS*. 2013;8:106. doi:10.1186/1748-5908-8-106.
- Shojania KG and Grimshaw JM. Evidence-Based Quality Improvement: The State of the Science. *Health Affairs*. 2005;24(1): 138-150.

***A list of proposal topics and potential clinical and research collaborators will be provided in Canvas and presented at the end of the Week 1 discussion session.***

**Week 2 - Research Design in Dissemination and Implementation Research, Part 1**  
**Discussion session – Jan. 16**

Readings:

- Chapter 13: Landsverk, J. et al. Design and analysis in dissemination and implementation research.
- Damschroder et al. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, 4:50.
- Adesoye T, Greenberg CC, Neuman HB. Optimizing Cancer Care Delivery through Implementation Science. *Frontiers in Oncology*. 2016;6:1. doi:10.3389/fonc.2016.00001.

**Week 3 – Research Design in Dissemination and Implementation Research, Part 2**  
**Discussion session – Jan. 23**

*Proposal topics and team must be selected by the start of the Week 3 discussion. Time will be set aside in the discussion session for students to briefly describe their topics.*

Readings:

- Balasubramanian BA, Heurtin-Roberts S, Krasny S, Rohweder CL, Fair K, Olmos-Ochoa TT, Stange KC, Gorin SS; MOHR Study Group. Factors Related to Implementation and Reach of a Pragmatic Multisite Trial: The My Own HealthReport (MOHR) Study. *J Am Board Fam Med*. 2017 May-Jun;30(3):337-349. doi: 10.3122/jabfm.2017.03.160151.
- Liang S, Kegler MC, Cotter M, et al. Integrating evidence-based practices for increasing cancer screenings in safety net health systems: a multiple case study using the Consolidated Framework for Implementation Research. *Implementation Science : IS*. 2016;11:109. doi:10.1186/s13012-016-0477-4.
- Cohen DJ, Balasubramanian BA, Gordon L, et al. A national evaluation of a dissemination and implementation initiative to enhance primary care practice capacity and improve cardiovascular disease care: the ESCALATES study protocol. *Implementation Science : IS*. 2016;11:86. doi:10.1186/s13012-016-0449-8.
- Zatzick DF, Russo J, Darnell D, et al. An effectiveness-implementation hybrid trial study protocol targeting posttraumatic stress disorder and comorbidity. *Implementation Science : IS*. 2016;11:58. doi:10.1186/s13012-016-0424-4.



## **Week 4 – Qualitative and Mixed Methods in Implementation Science**

### **Discussion session – Jan. 30**

#### Readings:

- Chapter 20: Palinkas, LA and Rhoades Cooper, B. Mixed Methods Evaluation in Dissemination and Implementation Science
- National Cancer Institute. 2018. *Qualitative Methods in Implementation Science*. <https://cancercontrol.cancer.gov/IS/docs/NCI-DCCPS-ImplementationScience-WhitePaper.pdf>
- Hamilton AB, Cohen AN, Glover DL, et al. Implementation of Evidence-Based Employment Services in Specialty Mental Health. *Health Services Research*. 2013; 48(6), Part II: 2224-2244.

## **Week 5 – Measurement Approaches for Dissemination and Implementation Research**

### **Discussion session – Feb. 6**

#### Readings:

- Chapter 14: Lewis, C.C., Proctor, E.K. & Brownson, R.C. Measurement issues in dissemination and implementation research.
- Chapter 16: Allen, J.D. et al. Fidelity and its relationship to implementation effectiveness, adaptation and dissemination.
- Chapter 18: Green, L.W. & Nasser, M. Furthering dissemination and implementation research: The need for more attention to external validity.
- Proctor et al. Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda. *Adm Policy Ment Health*. 2011;38: 65-76.

*Consultation Powerpoint and interview guide due by the start of the Week 5 discussion.*

**Week 6 – Student independent study and consultations with clinicians/researchers (no discussion session).** Students will make arrangements to meet in person with their collaborating clinicians, make their presentations to clinicians, and conduct their interviews. Meeting notes are due before the beginning of class in Week 7.

## **Week 7 - Student-led interim presentations of developing Implementation Science Proposals and collaborations with clinical and research faculty on the team**

### **Presentations and discussion – Feb. 20.**

Interim presentations will be brief – 10 minutes, plus 5 minutes for questions for each student. Discussion will focus on topics, stakeholder engagement strategies, implementation strategies and adaptations, questions, barriers encountered. To aid in preparing their final presentations, students will receive feedback on their presentation topics, content, and delivery.

*Clinician consultation meeting notes due by the start of the Week 7 discussion.*

## **Week 8 - Student-led interim presentations of developing Implementation Science Proposals and collaborations with clinical and research faculty on the team**

### **Presentations and discussion – Feb. 27.**

Interim presentations will be brief – 10 minutes, plus 5 minutes for questions for each student. Discussion will focus on topics, stakeholder engagement strategies, implementation strategies and adaptations, questions, barriers encountered. To aid in preparing their final presentations, students will receive feedback on their presentation topics, content, and delivery.

### **Spring Break, no class – March 2 to 6, 2020.**

## **Week 9 –Evaluation Approaches for Dissemination and Implementation Research**

### **Discussion session – March 12**

#### Readings:

- Chapter 19: Gaglio, B. & Glasgow, R.E. Evaluation approaches for dissemination and implementation research.
- Application of the RE-AIM Model: Krist AH, Aycock RA, Etz RS, Devoe JE, et al (2014). MyPreventiveCare: implementation and dissemination of an interactive preventive health record in three practice-based research networks serving disadvantaged patients- a randomized cluster trial. *Implement Sci.* 2014 Dec 11;9(1):181. doi: 10.1186/s13012-014-0181-1.
- PRECIS Model: Kevin E. Thorpe, Merrick Zwarensteinb, Andrew D. Oxman, et al (2009). A pragmatic explanatory continuum indicator summary (PRECIS): A tool to help trial designers, *Journal of Clinical Epidemiology* 62
- Shenkman E, Muller K, Vogel B, Nixon SJ, Wagenaar AC, Case K, Guo Y, Wegman M, Aric J, Stoner D. (2015). The wellness incentives and navigation project: design and methods. *BMC Health Services Research*, 15(1), 579. PMID: PMC4696169.
- Thompson LA, Wegman M, Muller K, Eddleton KZ, Muszynski M, Rathore M, De Leon J, Shenkman EA, Health IMPACTS for Florida Network. (2016). Improving Adolescent Health Risk Assessment: A Multi-Method Pilot Study. *Maternal and Child Health Journal*, 20(12), 2483-2493. PMID: PMC5124035.

## **Week 10 – Community Engagement and Dissemination Science**

### **Panel discussion - March 19**

*Meet the Citizen Scientists: Citizen Scientist Panel Discussion*

#### Readings:

- Chapter 11: Minkler, M., Salvatore, A.L., & Chang, C. Participatory Approaches for Study Design and Analysis in Dissemination and Implementation Research
- Meet the Citizen Scientists: Citizen Scientist Panel Discussion

## **Week 11: Special Topics in Implementation Science: Provider Capacity, De-Implementation, Rural Health**

### **Discussion session - March 26**

- Leeman J, Calancie L, Hartman MA, et al. What strategies are used to build practitioners' capacity to implement community-based interventions and are they effective?: a systematic review. *Implementation Science : IS*. 2015;10:80. doi:10.1186/s13012-015-0272-7.
- Montini T, Graham ID. "Entrenched practices and other biases": unpacking the historical, economic, professional, and social resistance to de-implementation. *Implementation Science : IS*. 2015;10:24. doi:10.1186/s13012-015-0211-7.
- Cucciare MA, Curran GM, Craske MG, et al. Assessing fidelity of cognitive behavioral therapy in rural VA clinics: design of a randomized implementation effectiveness (hybrid type III) trial. *Implementation Science : IS*. 2016;11:65. doi:10.1186/s13012-016-0432-4.

*Final presentation schedule will be established by the end of the discussion session. Students will be randomly selected to present in either Week 13 or Week 14. Exceptions to this selection method will be made on a case-by-case basis. Location of final presentations (TBD) will be announced.*

### **Week 12 – Student independent study and informal consultations with clinicians/researchers (no discussion session) – April 2.**

### **Week 13 – Final Student Presentations to CTSI, UF Health and Faculty Group Practice Leadership**

#### **Presentations – April 9**

Final presentations will be detailed – 20 minutes, plus 5 minutes for questions for each student. Presentations will follow the main topics described in the students' written proposals, focusing on aims, research strategy, and data sharing/dissemination plans.

*Final written proposals for presenting students due by start of the Week 13 presentations.*

### **Week 14 - Final Student Presentations to CTSI, UF Health and Faculty Group Practice Leadership**

#### **Presentations – April 16**

Final presentations will be detailed – 20 minutes, plus 5 minutes for questions for each student. Presentations will follow the main topics described in the students' written proposals, focusing on aims, research strategy, and data sharing/dissemination plans.

*Final written proposals for presenting students due by the start of the Week 14 presentations.*

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**Resources for preparation of 7-page abbreviated proposals, Use ½ margins and Arial 11 font.**

**Specific Aims (1 page)**

State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology. Be sure to list the very *specific* few research questions or hypotheses to be tested in the proposed study.

**Research Strategy (6 pages)**

*Significance*

Briefly sketch the background leading to the present application, critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. State concisely the importance and health relevance of the research described in this application by relating the specific aims to the broad, long-term objectives. If the aims of the application are achieved, state how scientific knowledge or practice will be advanced. Describe the effect of these studies on the concepts, methods, technologies, treatments, services or preventative interventions that drive the field.

*Innovation*

Explain how the application challenges and seeks to shift current research or clinical practice paradigms. Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions. Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions.

*Approach*

Describe the research design, conceptual or clinical framework, procedures, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted. Describe any new methods and their advantage over existing methods. Describe any novel concepts, approaches, tools, or technologies for the proposed studies. Discuss how threats to validity are addressed by the design. Discuss potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. As part of this section, provide a tentative sequence or timetable for the project. Point out any procedures, situations, or materials that may be hazardous to personnel and the precautions to be exercised.

**Human Subjects consideration (no page limit)**

- a. IRB protocol approval statement
- b. Inclusion of women, children, and minorities

**Data Sharing and Dissemination Plans (1/2 page)**

**Data Safety and Monitoring Plans (no page limit)**

**Literature cited** (no page limit; does not count toward 6 pages)

- a. Use AMA or APA guidelines, be accurate and consistent

**NIH R01 Instructions from website:**

<http://grants1.nih.gov/grants/funding/424/index.htm>