Graduate School of Biomedical Sciences
CTS 735
Introduction to Implementation Science: Moving Research into Practice in Healthcare and Community Settings

Syllabus
Fall 2017

MEETING TIME: Tuesdays, 1:00-3:00pm
LOCATION: AS8-2069
COURSE CREDIT: 2 credit hours
BEGIN DATE: September 12, 2016
END DATE: December 19, 2016

FACULTY:

Professors: Timothy P. Hogan, PhD
Associate Professor, Division of Health Informatics and Implementation Science, Department of Quantitative Health Sciences, University of Massachusetts Medical School
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Timothy P. Hogan, PhD, earned both his PhD and MS in Library and Information Science from the University of Illinois at Urbana-Champaign and his BS in Information Science from the University of Pittsburgh. He also completed a two-year VA Postdoctoral Fellowship in Health Services Research at VA's Center of Innovation for Complex Chronic Healthcare. He is currently Director of VA's eHealth Partnered Evaluation Initiative, Research Health Scientist at VA's Center for Healthcare Organization

and Implementation Research, and faculty within the Division of Health Informatics and Implementation Science at the University of Massachusetts. Dr. Hogan's expertise lies in the areas of consumer health informatics, Implementation Science, and research methods, specifically primary data collection and analysis techniques and the application of mixed method designs. His research focuses on individuals living with complex, chronic conditions and the implementation of consumer health informatics systems to support access to care, service delivery, and self-management.

Thomas K. Houston, MD, MPH, is founder of the Division of Health Informatics and Implementation Science at the University of Massachusetts, and a senior scientist at VA's Center for Healthcare Organization and Implementation Research. Dr. Houston's research focuses on the intersection of applied health informatics and behavior change. Over the past decade, he has maintained a funded program in both patient-centered eHealth research and provider-facing clinical informatics studies supported by VA, AHRQ, NIH (NHLBI and NCI), the Bayer Institute for Healthcare Communication, and Robert Wood Johnson Foundation. He has studied the implementation and effectiveness of computer tailored patient education, provider decision support, and quality improvement using Internet interventions, and doctor-patient electronic messaging.

Stephenie Lemon, PhD, earned her PhD in Epidemiology from Brown University, her MS in Epidemiology and BS in Psychology from the University of Massachusetts. She is the Director of the Worcester County Prevention Research Center, which establishes local capacity to conduct community-based participatory research addressing obesity and associated chronic conditions. Dr. Lemon is also an active member of the Massachusetts Comprehensive Cancer Coalition Advisory Committee and its Survivorship Working Group and the Common Pathways Coalition. Her research addresses the translation of evidence-based programs and policies in real world settings; community-based participatory research; health promotion in under-served populations; worksite health promotion; physical activity policy research; and the influence of social norms and social networks on health behaviors.

SUPPORT:

Teaching Assistant: Karen Ashe, MS, MNSP
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PRE-REQUESITE(S): None

COURSE DESCRIPTION: This class provides an introduction to what is often referred to as translational, dissemination, or implementation research, as well as the broad field of Implementation Science. Students will learn about the significance and major initiatives associated with moving research into practice, and will be introduced to conceptual and analytic tools (e.g., theories, frameworks) to support their emerging work in this area.

Three basic themes will be emphasized over the duration of the course: (1) the importance of understanding the context in which implementation occurs and the diverse factors that can influence implementation; (2) the variety of strategies that can be used to increase the adoption of interventions or innovations in practice; and (3) the consequences (both intended and unintended) that can accompany the implementation of an intervention or innovation. Course content is organized into broad thematic areas as evidenced by the reading list.

The final course assignment is intended to be both conceptual and pragmatic. Students will be asked to identify an implementation research project topic in which they are interested and to create a short proposal to investigate it more thoroughly. In so doing, they will have the opportunity to begin exploring in detail a specific project idea that relates to their professional goals and to build some early foundation for subsequent implementation research. The proposal will also be an opportunity to develop and refine basic proposal writing skills.

COURSE FORMAT: Course objectives will be met through class presentations, class discussion, a series of written assignments, and presentation of the final project. Various topics will be explored in most weeks of the course, and discussion of at least some of each week's readings will be part of class meetings. Requirements for assignments will be reviewed prior to their due dates. Student feedback on assignments is welcome and will be sought in an effort to continuously refine and improve course structure and content.

COURSE OBJECTIVES: Over the duration of this course, students will:

- Explore foundational perspectives and contemporary research in Implementation Science, including efforts to implement interventions and evidence-based practices in healthcare and community settings
- Understand the significance of implementation research to contemporary healthcare systems and social programs
- Gain knowledge of key organizations and initiatives associated with the advancement of Implementation Science
- Understand prominent implementation frameworks and be able to select among them for a particular project
- Understand the kinds of implementation strategies commonly used to support the movement of research into practice and be able to select among them for a particular project
- Examine the central role that context, including the characteristics of specific settings and populations, plays in implementation research
- Develop skills that support the reading and critical evaluation of published implementation research studies
- Demonstrate proficiency in developing a written proposal to pursue an implementation project of your choosing

In summary, this course is intended to provide foundation in concepts that are essential to designing and conducting high quality implementation research. It is constructed in a developmental manner to allow you to apply these concepts to small assignments and the development of an implementation research project proposal that you can use to inform subsequent work in the field.

COURSE REQUIREMENTS: All students are expected to complete the required readings and assignments, and to attend and actively participate in each class session. It is strongly recommended that you complete all readings prior to each class. Some readings will be explicitly discussed in class. Others may not be specifically referenced during class; however the concepts covered in these

readings will reinforce, illustrate or expand on critical concepts. Our goal is to foster a strong and open learning environment by helping each other grasp the assigned readings, engaging in discussion, articulating thoughts and perspectives related to the course themes, sharing other relevant resources encountered, and providing updates on our respective assignments. The instructors should be notified about student absences as far in advance as possible.

Assignments should be typed and submitted via email by 12:00pm (noon) on their respective due dates. In some cases, we will discuss them together at the next class session. They will be evaluated based on the extent of thought and analysis they represent, indication that important concepts have been grasped, evidence that appropriate resources (i.e., scholarly literature, other relevant materials) have been used, and the meaningful organization and presentation of content. Late assignments will not be accepted unless prior approval is secured from the instructors.

Students are expected to adhere to an accepted style when citing other works and preparing reference lists as part of their assignments (e.g., American Psychological Association style; Uniform Requirements for Manuscripts (URM) Submitted to Biomedical Journals; etc.). What is most important is that you consistently apply the rules of your chosen style throughout your assignments.

COURSE MATERIALS: There are no required textbooks for this course. Scholarly articles and other publications representing different perspectives on Implementation Science will comprise the bulk of the assigned readings for this class. Most readings will be available via electronic journals in the UMass library system.

ASSIGNMENTS and GRADING: See the end of the syllabus for more details regarding each class assignment.

- Class participation (20 points); ongoing
- Organization Review (10 points); due Week 3
- Project Proposal Brainstorm (10 points); due Week 6
- Implementation Framework Selection and Assessment (15 points); due Week 9
- Specifying an Implementation Strategy (15 points); due Week 12
- Final Project Proposal and Class Presentation (30 points); class presentations given Week 14; written proposal due end of Week 14

GRADING SCALE: The grading scale for this course is as follows.

Grade	Course Points
A	90 – 100
B	80 – 89.99
C	70 – 79.99

UMASSMED STATEMENT ON AMERICANS WITH DISABILITIES ACT: The University of Massachusetts Medical School (UMMS) is firmly committed, to the extent possible, to providing full access to individuals with disabilities and to covered veterans of the U.S. armed services. (The term "covered" refers to veterans who served in campaigns and those who received any campaign and/or expedition medals.) In so doing, UMMS intends to fully comply with the Americans with Disabilities Act (ADA) of 1990, EEOC guidelines, the Veterans' Employment Opportunity Act of 1998 (P.L. 105-339), and UMMS Human Resources policies. The Academic Accommodations Committee designs and monitors individual accommodation plans for students with disabilities and makes accommodations in compliance with ADA. If you have a disability that may require accommodations to complete the

work in the class, please review the following website http://www.umassmed.edu/ADA/index.aspx. Please be advised that while students can apply for ADA accommodations at any time, they are not retroactive.

UMASSMED GSBS HONOR CODE: In accepting admission to the Graduate School of Biomedical Science (GSBS), students make a personal commitment to abide by an Honor Code exemplifying a standard of behavior that will form a firm basis of future professional conduct as well as respecting the academic environment of the University of Massachusetts Medical School (UMMS). Each student, upon admission to the University, shall sign a document attesting to the fact that he/she understands the Honor Code and shall abide by it. The Honor Code applies to all aspects of the graduate student's education, including coursework and research. All student behavior that shows a lack of intellectual honesty or integrity is a violation of the Honor Code.

The Honor Code in its entirety can be reviewed within the GSBS Student Handbook the Web at: http://www.umassmed.edu/uploadedFiles/gsbs2/Students-Faculty/Student%20Handbook.pdf

Honor System must be upheld and enforced by each member of the University community. The Honor Code is designed to communicate the importance and meaning of our ethical standards.

STATEMENT ON SAFETY: The University of Massachusetts Police Department in Worcester is committed to provide a safe and secure environment in which students, faculty, staff, patients and visitors can conduct their activities. The University of Massachusetts Medical School considers safety of the campus community important and seeks to have all members of the campus community play a role in this regard. The emergency notification system combines all of the University's notification tools into a single system called UMass Alerts. Members of the campus community are encouraged to register their email address and/or cell phone for text messages at the address below.
https://csfvoif01p.umassp.edu/sso/jsp/salogin.jsp?doneURL=/user/loginsso&refID=id-VNPKRk9U9QOdtmEVM8Vqf7QpmoE-&forceauthn=false
University police officers are available 24 hours a day, seven days a week and are based in the police station located on the main level of the South Road parking garage. If you see a crime in progress, **call 911**. To report a tip related to a crime follow directions provided here:
http://www.umassmed.edu/Content.aspx?id=170934&linkidentifier=id&itemid=170934

EMERGENCY CONTACT INFORMATION: For school closings due to inclement weather, check http://www.umassmed.edu/weather/index.aspx or call the **Campus Status Phone Line 508-856-4000.**

UMASSMED GSBS IMPORTANT DATES: Important dates for this semester are available at:
http://www.umassmed.edu/gsbs/studentsfaculty/academic_calendar.aspx

Week	Date	Topic	Assignments and/or In-Class Activities	Readings
1	Sept 12	Course overview Orientation to Implementation Science	Lecture: Tom Houston, Stephenie Lemon, Tim Hogan	Glasgow, R. E., Vinson, C., Chambers, D., Khoury, M. J., Kaplan, R. M., & Hunter, C. (2012). National Institutes of Health approaches to dissemination and Implementation Science: current and future directions. *Am J Public Health, 102*(7), 1274-1281. Rubenstein, L. V., & Pugh, J. (2006). Strategies for promoting organizational and practice change by advancing implementation research. *J Gen Intern Med,* 21 Suppl 2, S58-64. Woolf, S. H. (2008). The meaning of translational research and why it matters. *JAMA, 299*(2), 211-213.
2	Sept 19	Further anchoring terminology and evolution of the field	Lecture: Tim Hogan	Bauer, M.S., Damschroder, L., Hagedorn, H., Smith, J. & Kilbourne A.M. (2015). An introduction to implementation science for the non-specialist. *BMC Psychol,* 3, 32. Glasgow, R. E., & Chambers, D. (2012). Developing robust, sustainable, implementation systems using rigorous, rapid and relevant science. *Clin Transl Sci, 5*(1), 48-55. Proctor, E. K., Landsverk, J., Aarons, G., Chambers, D., Glisson, C., & Mittman, B. (2009). Implementation research in mental health services: an emerging science with conceptual, methodological, and training challenges. *Adm Policy Ment Health,* 36(1), 24-34. *Optional:* Chambers, D.A., Feero, W.G. &

				Khoury, M.J. (2016). Convergence of implementation science, precision medicine, and the learning healthcare system: a new model for biomedical research. *JAMA,* 315(18), 1941-1942.
3	Sept 26	Stakeholder engagement	Due: Organization Review Lecture: Stephenie Lemon	Concannon, T.W., Meissner, P., Grunbaum, J.A., McElwee, N., Guise, J-M., Santa, J. et al. (2012). A new taxonomy for stakeholder engagement in patient-centered outcomes research. *J Gen Intern Med,* 27(8), 985–91. Hamilton AB, Brunner J, Cain C, Chuang E, Luger TM, Canelo I, Rubenstein L, Yano EM. (2017) Engaging multilevel stakeholders in an implementation trial of evidence-based quality improvement in VA women's health primary care. *Translational Behavioral Medicine, Jun 5. doi: 10.1007/s13142-017-0501-5.* Wallerstein, N. & Duran, B. (2010). Community-based participatory research contributions to intervention research: the intersection of science and practice to improve health equity. *Am J Public Health,* 100 Suppl 1:S40-6.
4	Oct 3	The important role of evidence and the context of the cancer care continuum	Lecture: Tom Houston	Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Evidence-based public health: a fundamental concept for public health practice. *Annu Rev Public Health, 30*, 175-201. Glasgow, R. E., Green, L. W., Taylor, M. V., & Stange, K. C. (2012). An evidence integration triangle for aligning science with policy and practice. *Am J Prev Med*, 42(6), 646-654.

				Yano, E. M., Green, L. W., Glanz, K., Ayanian, J. Z., Mittman, B. S., Chollette, V., & Rubenstein, L. V. (2012). Implementation and spread of interventions into the multilevel context of routine practice and policy: implications for the cancer care continuum. *J Natl Cancer Inst Monogr, 2012*(44), 86-99. *Optional:* Atkins, D., Best, D., Briss, P. A., Eccles, M., Falck-Ytter, Y., Flottorp, S., . . . Group, G. W. (2004). Grading quality of evidence and strength of recommendations. *BMJ*, 328(7454), 1490.
5	Oct 10	Quality improvement research and its relationship to Implementation Science	Lecture: Sharon Johnson, PhD, Director, Healthcare Delivery Institute, Associate Professor, Operations and Industrial Engineering, School of Business, Worcester Polytechnic Institute	Balasubramanian, B. A., Cohen, D. J., Davis, M. M., Gunn, R., Dickinson, L.M., Miller, W. L. et al. (2015). Learning evaluation: Blending quality improvement and implementation research methods to study healthcare innovations. *Implement Sci*, 10(1), 1. Kaplan, H.C., Brady, P.W., Dritz, M.C., Hooper, D.K., Linam, W.M., Froehle, C.M. & Margolis, P. (2010). The influence of context on quality improvement success in health care: A systematic review of the literature. *Milbank Quarterly*, 88(4), 500–559. Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. E. (2014). Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Qual Saf*, 23(4), 290-298. *Optional:* Toussaint, J.S. & Berry, L.L. (2013). The promise of Lean in healthcare." *Mayo Clinic Proceedings*, 88 (1),

				74–82.
6	Oct 17	Introduction to frameworks, theories, and models in Implementation Science	Due: Project Proposal Brainstorm Lecture: Tim Hogan Group discussion of project brainstorms	Grol, R. P., Bosch, M. C., Hulscher, M. E., Eccles, M. P., & Wensing, M. (2007). Planning and studying improvement in patient care: the use of theoretical perspectives. *Milbank Q,* 85(1), 93-138. Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implement Sci,* 10, 53. Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2012). Bridging research and practice: models for dissemination and implementation research. *Am J Prev Med*, 43(3), 337-350. *Optional:* Skolarus, T.A., Lehmann, T., Tabak, R.G., Harris, J., Lecy, J. & Sales, A.E. (2017). Assessing citation networks for dissemination and implementation research frameworks. *Implement Sci,* 12, 97.
7	Oct 24	More implementation frameworks – explanatory; Share and discuss project brainstorms	Lecture: Tim Hogan	Aarons, G. A., Hurlburt, M., & Horwitz, S. M. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Adm Policy Ment Health, 38*(1), 4-23. Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing Implementation Science. *Implement Sci, 4*, 50.

8	Oct 31	More implementation frameworks – prescriptive; explanatory-prescriptive	Lecture: Tim Hogan	Kilbourne, A.M., Neumann, M.S., Pincus H.A., Bauer, M.S. & Stall R. (2007). Implementing evidence-based interventions in health care: application of the replicating effective programs framework. *Implement Sci,* 2, 42. Feldstein, A. C., & Glasgow, R. E. (2008). A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. *Jt Comm J Qual Patient Saf, 34*(4), 228-243. Harvey, G. & Kitson, A. (2016). PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice. *Implement Sci,* 11, 33. *Optional:* Gielen, A.C., McDonald, E.M., Gary, T.L., and Bone, L.R. (2008). Using the PRECEDE/PROCEED Model to Apply Health Behavior Theories. In K. Glanz, F.M. B. K. Rimer, & K. Viswanath, (Eds.), *Health Behavior and Health Education: Theory, Research and Practice*. 4th edition, pp. 407-433. San Francisco: Jossey-Bass
9	Nov 7	Behavioral science theory; share and discuss Framework Selections and Assessments	Due: Framework Selection and Assessment Lecture: Stephenie Lemon Group discussion of framework selections	Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D. & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: a consensus approach. *Qual Saf Health Care,* 14, 26-33. Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annu*

				Rev Public Health, 31, 399-418.
10	Nov 14	Implementation strategies	Lecture: Tim Hogan	Powell, B. J., McMillen, J. C., Proctor, E. K., Carpenter, C. R., Griffey, R. T., Bunger, A. C., . . . York, J. L. (2012). A compilation of strategies for implementing clinical innovations in health and mental health. *Med Care Res Rev*, 69(2), 123-157. Powell, B.J., Waltz, T.J., Chinman, M.J., Damschroder, L.J., Smith, J.L., Matthieu, M.M., Proctor, E.K. & Kirchner, J.E. (2015). A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. *Impement Sci*, 10, 21. Proctor, E. K., Powell, B. J., & McMillen, J. C. (2013). Implementation strategies: recommendations for specifying and reporting. *Implement Sci, 8*, 139. *Optional:* Colquhoun, H.L., Squires, J.E., Kolehmainen, N., Fraser, C. & Grimshaw, J.M. (2017). Methods for designing interventions to change healthcare professionals' behaviour: a systematic review. *Implement Sci,* 12, 30.
11	Nov 21	More implementation strategies; selecting and applying strategies	Lecture: Kathleen Mazor, EdD, Professor of Medicine, University of Massachusetts Medical School, and Associate Director, Meyers Primary Care Institute	Brouwers, M.C., De Vito. C., Bahirathan, L., Carol, A., Carroll, J.C., Cotterchio, M., et al. (2011). What implementation interventions increase cancer screening rates? A systematic review. *Implement Sci,* 6, 111. Lessard, S., Bareil, C., Lalonde, L.,

				Duhamel, F., Hudon, E. Goudreau, J. & Levesque, L. (2016). External facilitators and interprofessional facilitation teams: a qualitative study of their roles in supporting practice change. *Implement Sci,* 11, 97. Rogal, S.S., Yakovchenko, V., Waltz, T.J., Powell, B.J. Kirchner, J.E., Proctor, E.K., et al. (2017). The association between implementation strategy use and the uptake of hepatitis C treatment in a national sample. *Implement Sci,* 12, 60.
12	Nov 28	Sustainability and de-implementation	Due: Specifying an Implementation Strategy Lecture: Tom Houston	Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. *Implement Sci, 8*, 117. Prasad, V., & Ioannidis, J. P. (2014). Evidence-based de-implementation for contradicted, unproven, and aspiring healthcare practices. *Implement Sci, 9*, 1. Wiltsey Stirman, S., Kimberly, J., Cook, N., Calloway, A., Castro, F., & Charns, M. (2012). The sustainability of new programs and innovations: a review of the empirical literature and recommendations for future research. *Implement Sci, 7*, 17. *Optional:* Aron, D.C., Lowery, J., Tseng, C.L., Conlin, P. & Kahwati, L. (2014). De-implementation of inappropriately tight control (of hypoglycemia) for health: protocol with an example of a research grant application. *Implement Sci, 9*, 58. Proctor, E., Luke, D., Calhoun, A., McMillen, C., Brownson, R.,

				McCrary, S. & Padek M. (2015). Sustainability of evidence-based healthcare: research agenda, methodological advances, and infrastructure support. *Implement Sci,* 10, 88.
13	Dec 5	Learning from the experiences of emerging implementation scientists	Lecture: PRACCTIS fellows and former students discuss their implementation projects and implementation research to date (facilitated by Karen Ashe)	Materials from PRACCTIS fellows and former students
14	Dec 12	Proposal presentations	Due: Final Project Proposals by 12/15 (Fri) Tom Houston, Stephenie Lemon, Tim Hogan	
15	Dec 19	Coda and course synthesis	Lecture: Mark Bauer, MD, Professor of Psychiatry, Harvard Medical School, Associate Director, Center for Healthcare Organization and Implementation Research	

Assignment #1: Organization Review

Overview
Examining relevant professional organizations is a useful way to understand the landscape of an unfamiliar field or discipline. The resources and opportunities provided by such organizations can also be useful to your own research and career.

Description
Visit some of the websites associated with key professional organizations in the field of Implementation Science. A list is provided below. If you discover other related organizations of interest, please include them in your review. As you visit the sites, consider their mission/objective statements, events, subgroups (i.e., working or special interest groups), publications and other products, and resources for research and development. After spending time with the sites, write a 1-page overview of what you found. For example, did you identify common themes across organizations? Which are most relevant to you and your work? Has your view of Implementation Science changed at all because of this review?

Some key organizations related to Implementation Science:

- National Cancer Institute, Cancer Control and Population Sciences, Implementation Science
  - http://cancercontrol.cancer.gov/IS/index.html
- Global Implementation Initiative
  - http://globalimplementation.org/
- National Implementation Research Network
  - http://nirn.fpg.unc.edu/
- Improvement Science Research Network
  - http://isrn.net/index.asp
- VA Quality Enhancement Research Initiative Program
  - http://www.queri.research.va.gov/default.cfm
- Center for Implementation-Dissemination of Evidence-Based Practices among States
  - http://www.ideas4kidsmentalhealth.org/
- Center for Dissemination and Implementation
  - http://publichealth.wustl.edu/centers/dissemination-implementation/
- Center for Research in Implementation Science and Prevention
  - http://www.ucdenver.edu/academics/colleges/medicalschool/programs/crisp/Pages/default.aspx
- Society for Implementation Research Collaboration
  - https://www.societyforimplementationresearchcollaboration.org/
- University of Washington Evidence-Based Practice Institute
  - http://depts.washington.edu/pbhjp/evidence-based-practice-institute/about-institute

Grading
The Organization Review is worth 10 points.

Deadline
Submit your assignment to both Karen Ashe and Timothy Hogan by 12:00pm (noon) on Tuesday of Week 3 – September 26th

Assignment #2: Project Proposal Brainstorm

Overview
This short assignment is envisioned as a first step towards completion of your final assignment for the course. It is intended to get you thinking early about your research trajectory in the field of Implementation Science, and to share your interests with others.

Description
Develop a one-page description of an implementation research project that you would like to pursue. This idea is what you will develop a project proposal about for the final course assignment. Your project could focus on a range of different topics; you are encouraged to think broadly about what you might like to pursue.

Your one-page description should clearly identify your focus, how you think it should be approached, and why it is significant. Note that the final project proposal will require a review of relevant literature, specific aims/objectives, identification of an appropriate implementation framework, description of an implementation strategy or set of strategies, and a methods write-up. The proposal will be similar in content and form to one that might be submitted to a funding agency.

Following submission of this brainstorm, students will have the opportunity to explore appropriate implementation frameworks for their project (Week 9) and to also delineate their intervention and accompanying implementation strategy/strategies (Week 12). These subsequent assignments will provide valuable opportunities to gather feedback on the evolving final project proposal.

Grading
The Project Proposal Brainstorm is worth 10 points.

Deadline
Submit your assignment to both Karen Ashe and Timothy Hogan by 12:00pm (noon) on Tuesday of Week 6 – October 17th

Assignment #3: Implementation Framework Selection and Assessment

Overview
The selection of an implementation framework has tremendous implications for how a particular project is approached. A thoughtfully selected framework can highlight factors that may influence implementation, guide implementation processes, and inform measurement. Yet selecting an appropriate implementation framework is not easy; there are numerous frameworks described in the literature. This assignment provides an opportunity to explore implementation frameworks that may be relevant to your final project and to consider the implications of selecting a particular framework or frameworks for your project.

Description
Develop a 1-2 page analysis of an implementation framework or frameworks that could be used to guide the project in your final proposal. Begin by briefly describing the intervention you are trying to implement, including characteristics of the proposed intervention and its targets. You should also reflect on the changes that are necessary to implement the intervention, and the potential factors that could influence implementation.

With those details in place, begin to reflect on the implementation frameworks introduced in the course as well as any others you may have discovered on your own, and identify those that seem most relevant to your project. From the list of frameworks you generated, select the framework that seems most appropriate for your project and provide a rationale for your selection. If you feel multiple frameworks are necessary, describe why that is, and how you will draw on them to inform your work.

Your rationale should include a brief characterization of the framework or frameworks (e.g., key concepts represented, important relationships postulated) and a description of how the framework or frameworks address the kinds of influencing factors you noted when describing your intervention. Finally, consider how you will use the framework in your project and evaluate its usefulness to the project.

The following website may be interesting to visit as you brainstorm:

Dissemination and Implementation Models in Health Research and Practice
http://dissemination-implementation.org/

Grading
The Implementation Framework Selection and Assessment is worth 15 points.

Deadline
Submit your assignment to both Karen Ashe and Timothy Hogan by 12:00pm (noon) on Tuesday of Week 9 – November 7th

Assignment #4: Specifying an Implementation Strategy

Overview
As noted by Proctor and colleagues (2015), implementation strategies are critically important in Implementation Science as they constitute the 'how to' component of changing current practices. Yet delineating between an intervention and an accompanying implementation strategy can sometimes be challenging. Further, despite their importance to the field, it is often the case that implementation strategies are poorly defined and described in the literature. This assignment provides an opportunity to think critically about, and meaningfully describe, the implementation strategy that will be part of your final project.

Description
Do a careful review of the Proctor, Powell, and McMillen (2015) article from our assigned readings. Pay particular attention to the fundamental principles they offer for naming, defining, and specifying implementation strategies. Next, briefly describe the intervention you are trying to implement in your final project, noting any changes in your thinking/planning since you described the intervention in assignment #3 (Week 9).

With those details in place, begin to reflect on the implementation strategy that seems most appropriate for your final project. Using the fundamental principles articulated by Proctor, Powell, and McMillen (2015), proceed to (1) name, (2) define, and (3) specify your strategy.

Your write-up should run 1-2 pages and can take the form of an outline or list like that shown in Table 1 of the Proctor, Powell, and McMillen (2015) article.

Grading
The Specifying an Implementation Strategy assignment is worth 15 points.

Deadline
Submit your assignment to both Karen Ashe and Timothy Hogan by 12:00pm (noon) on Tuesday of Week 12 – November 28th

Assignment #5: Final Project Proposal

Overview
The importance of Implementation Science is well recognized by many local, state, and federal agencies that provide funding for the pursuit of novel implementation research, and there are different calls for implementation research proposals.

Description
For the final assignment, you will develop a full project proposal for an implementation research project of your choice. The range of acceptable projects is broad; ideally, your proposal will provide foundation for your future work. Our other course assignments up to this point have been intended to facilitate early thinking about this assignment.

Proposals are expected to be similar in content and form to one that might be submitted to a formal funding agency, including sections of a typical proposal narrative. A brief proposal template will be provided to guide your writing. Additional information will also be provided as the course proceeds to help you complete the various sections of the proposal.

Your proposal should run no longer than 8-10 single-spaced (12-point font, one-inch margins) pages, not including the reference list or any additional appendices that you wish to include.

In addition to our class discussions about your evolving proposals during the semester, the following articles may be interesting resources to consult as you work on this assignment:

- Neta, G., Sanchez, M. A., Chambers, D. A., Phillips, S. M., Leyva, B., Cynkin, L., . . . Vinson, C. (2015). Implementation Science in cancer prevention and control: a decade of grant funding by the National Cancer Institute and future directions. *Implement Sci, 10*(1), 4.

- Proctor, E. K., Powell, B. J., Baumann, A. A., Hamilton, A. M., & Santens, R. L. (2012). Writing implementation research grant proposals: ten key ingredients. *Implement Sci, 7*, 96.

Grading
The Final Project Proposal is worth 30 points.

You will also be expected to give a brief (10-15 minute) presentation of your proposal in class during Week 14. Your presentation should be directed at settings and/or stakeholders that you would hope to get involved in the project.

Deadline
Submit your assignment to both Karen Ashe and Timothy Hogan by 12:00pm (noon) at the end of Week 14 (Friday, December 15th)