I. Course Description
The use of technology for public health recruitment, assessment, and intervention has grown dramatically since the introduction of the Internet and adoption of smartphones. Technology provides both opportunities for public health research and practice and challenges in adoption, adaptation, and implementation. This purpose of this course is to provide an overview of ways technology may be used as a recruitment, assessment, and intervention tool in public health research and practice. Students will gain a greater understanding of core e-learning principles, the opportunities and challenges associated with technologies, and practical strategies for designing and managing technology-based public health interventions and programs. At the conclusion of the course, students should have basic understanding of e-Health approaches to choose the appropriate technology before embarking on a public health research or practice project, basic skills for designing a technology-based public health intervention, and best practices for assembling and managing a team to successfully build and implement a technology-delivered project.

II. Course Prerequisites
MPH students, PhD students, or other graduate students (or permission of the instructor)

III. Course Goals and Objectives
The goals of the course include:
1. Increase understanding of ways that technology may be used for recruitment, assessment, and intervention in public health research and practice.
2. Promote understanding of core e-learning principles that can be applied to technology-based public health intervention and programs.
3. Provide students with greater insights into the opportunities and challenges that accompany different forms of technologies (e.g., online, smartphone) for use in public health research and practice.
4. Provide students with basic design skills to develop and plan an e-health intervention.
5. Provide students with practical project management strategies to oversee studies or interventions that include a technology component.

IV. Methods of Instruction and Work Expectations
Methods of instruction include lectures, in-class discussions, course readings, and peer feedback sessions. Researchers, developers, and technology experts will be invited to give presentations that address concepts discussed in class. Students are expected to attend class, complete reading assignments, participate in class discussions, complete homework on time, and contribute to an atmosphere of curiosity and learning. This is a 2 credit course and, therefore, students can expect to spend approximately 6 hours per week outside of class preparing for class discussions, assignments, and quizzes.

V. Course Text and Readings
Required course textbooks are:


Additional readings and handouts, including scientific studies and other articles from peer-review journals and other public health publications, will be assigned during the course. Links to assigned readings will be posted on the Moodle course web site (see below), which students are expected to check regularly. Assigned journal articles can also be downloaded from the university libraries website (https://www.lib.umn.edu). If you have problems accessing the course website or materials, please contact the course instructor by 12:00 p.m. (noon) on Friday since he may not be available to assist you on weekends.

VI. Course Outline/Weekly Schedule

Note: Course syllabus may change during the semester. Changes will be announced in class and posted on the Moodle course website. Students are responsible for being aware of any changes made to the syllabus.

Access Course Moodle Site
- Go to www.umn.edu click on the “myU” button
- Login with your University ID and password
- Scroll to your course and click on the Moodle site link.

Week 1: January 23, 2017

Topics: Course Overview, e-Health Opportunities and Challenges, & Theory of Information Technology Adoption

Course Textbook Reading:
Bull, S. (2011): Chapter 1

Colvin-Clark & Mayer: Chapter 1

**Additional Readings:**


**In-Class Activity:** Think of an online, mobile or other technology-related program that you’ve participated in. What was its purpose? What features did it contain? Why was it successful or not for you? How would you adapt it to be more relevant to you?

**Week 2:** January 30, 2017

**Topics:** Survey and Assessment using Technology

**Course Textbook Reading:**

none

**Additional Reading:**

Eysenbach, G. Improving the quality of Web surveys: the Checklist for reporting results of Internet e-surveys (CHERRIES). J Med Internet Res 2004; 6(3): e34


**Assignment 1 Due:** Project Ideas @ 1:25 on 1/30/2017

**Take Home Activity:** Designing an Online Survey using Qualtrics

**Week 3:** February 6, 2017

**Topics:** Recruitment and Retention using Technology: Reaching your Target Audience

**Course Textbook Reading:**

none

**Additional Readings:**


In-Class Activity: Recruitment and retention of diverse populations

Week 4: February 13, 2017

Topics: E-learning principles #1

Course Textbook Reading:

Colvin-Clark & Mayer: Chapter 2, 4, 5, 6

Additional Readings:

none

In-Class Activity: Evaluate health websites – graphics, contiguity, and audio elements

Peer Feedback Session 1: Project Concept Paper

Week 5: February 20, 2017

Topics: E-learning principles #2

Course Textbook Reading:

Colvin-Clark & Mayer: Chapters 7, 8, 9, 10

Additional Readings:

none

In-Class Activity: Evaluate health websites – redundancy, coherence, personalization, segmentation

Assignment 2 Due: Project Concept Paper @ 11:59 on 2/20/2017

Week 6: February 27, 2017

Topics: Designing your Intervention: Personas

Course Textbook Readings:

Colvin-Clark & Mayer: Chapter 11

Brown, D. M. (2010): Chapters 1, 2, & 3

Additional Readings:

none
In-Class Activity: Designing Personas

Week 7: March 6, 2017

Topics: Smartphone App & Text Messaging Interventions

Course Textbook Reading:

none

Additional Readings:


Heffernan, KJ, Chang, S, Maclean ST et al. Guidelines and recommendations for developing interactive eHealth apps for complex messaging in health promotion. JMIR mHealth and uHealth 2016; 4(1): e14


Guest lecture: Casey Helbing, Founder of Software for Good

Peer Feedback Session 2: Personas

March 13, 2017: SPRING BREAK!!

Week 8: March 20, 2017

Topics: Designing your Intervention: Journey Mapping and Process Flow

Course Textbook Readings:

Brown, D. M. (2010): Chapter 4

Additional Readings:

none

Guest Lecture: Mary Polding from Vidscrip

In-Class Activity: Designing Journey Maps

Assignment 3 Due: Personas @ 11:59 on 3/20/2017
**Week 9:**  March 27, 2017

**Topics:**  Social Media Interventions for Public Health

*Course Textbook Readings:*

Colvin-Clark & Mayer: Chapters 14 & 17

*Additional Readings:*


*Peer Feedback Session 3:* Journey Map

**Week 10:**  April 3, 2017

**Topics:**  Other Design Artifacts: Site Maps, Flowcharts, and Wireframes

*Course Textbook Readings:*

Brown, D. M. (2010): Chapters 5, 6, 7

*Additional Readings:*

None

*In-Class Activity:* Designing Wireframes

*Assignment 4 Due:* Journey Map @ 11:59 on 4/3/2017

**Week 11:**  April 10, 2017

**Topics:**  Usability Testing

*Course Textbook Readings:*


*Additional Readings:*

None

*Peer Feedback Session 4:* Wireframes
Week 12: April 17, 2017

Topics: Scope of Work, Content Management System, Back-end Reporting, and Data Management & Working with Vendors

Course Textbook Reading:
none

Additional Readings:


Guest lecture: Ali Ecklund, MPH from EpiCH

Assignment 5 Due: Wireframes @ 11:59 on 4/17/2017

Week 13: April 24, 2017

Topics: Human subjects, Ethics, and Data Privacy in Technology-based Research and Practice

Course Textbook Reading:

Additional Reading:

Week 14: May 1, 2017

Assignment 6 Due: Project Presentation due @1:25 on 5/1/2016

FINAL PORTFOLIO: Assignment 7 Due: Final Project due @ 11:59 on 5/5/2016

VII. Evaluation and Grading
Final Grades for the class will be calculated based on performance in the following areas:

Peer Feedback Sessions (8% of grade):
You will have the opportunity to gain peer feedback on your assignment the week before each assignment is due. Peer feedback is a valuable way to gain insight into the potential strengths and weaknesses of your approach. You will be randomly paired with a peer, who will provide feedback on your assignments. Your participation in these peer feedback session will constitute 10% of your final grade.

Assignment 1: Project Ideas (5% of final grade)

You will bring to class 3 ideas for your project. For each of the ideas, provide the following information: 1) What health behavior are you targeting?; 2) What is your target populations; 3) What technology/ies will you use to deliver the intervention?; 4) What are 2-3 of the most important features of the intervention/program?; 5) How unique is this with respect to existing programs/interventions? Be prepared to discuss your ideas with two classmates to help you choose which idea to use for your project.

Assignment 2: Project Concept Paper (30% of final grade):

You will be asked to provide a concept sheet for your project. The project concept paper will be used to provide information about your proposed intervention in the following areas: a) What public health topic you are addressing?; b) What is the significance of the proposed project in context of existing literature?; c) What is the innovation of your proposed project with respect to the benefits of technology-based health promotions; d) What is the proposed intervention, and what approach will you take to develop it?; e) What are the limitations and challenges to the proposed intervention? The paper should be between 5-7 pages.

Assignment 3: Personas (12% of final grade):

Following recommendations provided in the course textbook (by Brown), create 3 personas that represent typical users of your intervention. Personas should represent potential users of the intervention, and be sufficiently developed to guide the development of the project site map and wireframes. The paper should be 3 pages.

Assignment 4: Journey Mapping (8% of final grade):

Using information learned in class, develop a “Journey Map” for your intervention. Your Journey Map should contain the following information: a) The User (i.e., consumer) Journey that describes how the user will adopt your intervention and achieve the outcome desired b) At each stage of the User Journey, describe the user sentiment that a typical user at that stage would express, c) At each stage of the User Journey, describe the expected outcomes you would like to achieve, and d) Describe when each component of your intervention would be implemented (i.e., rolled out) vis-à-vis the User Journey, and what metrics you are going to use to assess whether the components you roll out have reached the desired outcome. The paper should be 1 page.

Assignment 5: Wireframes (12% of final grade):

Wireframes are a simplified (either paper and pencil or using a computer graphics tool) view of what content should appear on a screen of your intervention. This tells the intervention and design teams what information and graphics should be included on that page of your intervention, as well as the layout of that particular screen. Following recommendations provided in the course textbook (see Chapter 7 in Dan Brown’s book), develop wireframes for 3 substantive page of your intervention. Wireframes should include a sketch of the page (1 page per wireframe). On a separate page, describe the elements included on each of your wireframes page and the purpose that each feature serves (for example, describing how that feature fits in with your overall
intervention, or if that feature is there to provide visual interest or engagement). The paper should be 1 page.

**Assignment 6: Project Presentation (10% of final grade):**

A round-robin style presentation day will allow students to showcase their work to peers in an informal context. Each student will give brief (10 minutes) Power Point (or equivalent) presentation of their portfolio to their classmates (likely using a laptop). Groups will consist of 5 members. After each member of a group has finished giving their presentation, a second group of new members will be assembled and the presentation given once more.

**Assignment 7: Project Portfolio (15% of final grade):**

The final project will be the all of the assignments (Project Concept Paper, Personas, Journey Map and Wireframes), plus a description of the team members who should be included in intervention/program development, a usability testing plan, and a discussion of the ethical/human subjects issues. Based on students' evolving thinking on their project, as well as feedback from peers and the instructor, students are encouraged to edit to improve previous assignments. In addition, new components (intervention/program team members, usability testing, ethical/human subjects issues) should be added to the revised Project Concept Paper. The goal of the final project is to have a final, polished portfolio that demonstrates students' experiences and understanding of technology-based intervention/program development and implementation based on their chosen intervention/program.

*Extra credit is not offered in this course. Students’ final grades will be calculated based on their performance on class assignments.*

*Assignments handed in late (without permission by instructor or proof of medical emergency) will be penalized by subtracting 5% points off of the grade for each day late (excluding weekends). Late assignments will be accepted up to 2 weeks after the due date, after which a 0% for that assignment will be given.*

**Grading**

**Final grades** will be assigned as follows:

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<thead>
<tr>
<th>Percent</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100</td>
<td>A</td>
</tr>
<tr>
<td>90-92</td>
<td>A-</td>
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<tr>
<td>87-89</td>
<td>B+</td>
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<tr>
<td>83-86</td>
<td>B</td>
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<td>80-82</td>
<td>B-</td>
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<td>77-79</td>
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<td>73-76</td>
<td>C</td>
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<td>70-72</td>
<td>C-</td>
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<tr>
<td>60-69</td>
<td>D</td>
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<tr>
<td>59 or below</td>
<td>F</td>
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</tbody>
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For students taking this class S/N a minimum of 80% is required for a passing grade. Students may change grading options during the initial registration period or during the first two weeks of the semester. The grading option may not be changed after the second week of the term.

**Course Evaluation**

The SPH will collect student course evaluations electronically using a software system called CoursEval: [www.sph.umn.edu/courseval](http://www.sph.umn.edu/courseval). The system will send email notifications to students
when they can access and complete their course evaluations. Students who complete their course evaluations promptly will be able to access their final grades just as soon as the faculty member renders the grade in SPHGrades: www.sph.umn.edu/grades. All students will have access to their final grades through OneStop two weeks after the last day of the semester regardless of whether they completed their course evaluation or not. Student feedback on course content and faculty teaching skills are an important means for improving our work. Please take the time to complete a course evaluation for each of the courses for which you are registered.

Incomplete Contracts
A grade of incomplete "I" shall be assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., documented illness or hospitalization, death in family, etc.), the student was prevented from completing the work of the course on time. The assignment of an "I" requires that a contract be initiated and completed by the student before the last official day of class, and signed by both the student and instructor. If an incomplete is deemed appropriate by the instructor, the student in consultation with the instructor, will specify the time and manner in which the student will complete course requirements. Extension for completion of the work will not exceed one year (or earlier if designated by the student's college). For more information and to initiate an incomplete contract, students should go to SPHGrades at: www.sph.umn.edu/grades.

University of Minnesota Uniform Grading and Transcript Policy
A link to the policy can be found at onestop.umn.edu.

VIII. Other Course Information and Policies

Grade Option Change (if applicable):
For full-semester courses, students may change their grade option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester courses) can be found at onestop.umn.edu.

Course Withdrawal:
Students should refer to the Refund and Drop/Add Deadlines for the particular term at onestop.umn.edu for information and deadlines for withdrawing from a course. As a courtesy, students should notify their instructor and, if applicable, advisor of their intent to withdraw.

Students wishing to withdraw from a course after the noted final deadline for a particular term must contact the School of Public Health Office of Admissions and Student Resources at sph-ssc@umn.edu for further information.

Student Conduct Code:
The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: Student Conduct Code. To review the Student Conduct Code, please see: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."
Use of Personal Electronic Devices in the Classroom:
Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference: http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html.

Scholastic Dishonesty:
You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an “F” or an “N” for the course, and may face additional sanctions from the University. For additional information, please see: http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: http://www1.umn.edu/oscai/integrity/student/index.html. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class—e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences:
Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html.

Appropriate Student Use of Class Notes and Course Materials:
Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html.

Sexual Harassment:
"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy: http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf

Equity, Diversity, Equal Opportunity, and Affirmative Action:
The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy: http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations:
The University of Minnesota is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center Student Services is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DRC at 612-626-1333 or drc@umn.edu to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, https://diversity.umn.edu/disability/.

Mental Health and Stress Management:
As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: http://www.mentalhealth.umn.edu.

The Office of Student Affairs at the University of Minnesota:
The Office for Student Affairs provides services, programs, and facilities that advance student success, inspire students to make life-long positive contributions to society, promote an inclusive environment, and enrich the University of Minnesota community.

Units within the Office for Student Affairs include, the Aurora Center for Advocacy & Education, Boynton Health Service, Central Career Initiatives (CCE, CDes, CFANS), Leadership Education and Development –Undergraduate Programs (LEAD-UP), the Office for Fraternity and Sorority Life, the Office for Student Conduct and Academic Integrity, the Office for Student Engagement, the Parent Program, Recreational Sports, Student and Community Relations, the Student Conflict Resolution Center, the Student Parent HELP Center, Student Unions & Activities, University Counseling & Consulting Services, and University Student Legal Service.

For more information, please see the Office of Student Affairs at http://www.osa.umn.edu/index.html.

Academic Freedom and Responsibility: for courses that do not involve students in research:

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for
critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, (Dr Kristin Anderson, SPH Dean of Student Affairs), or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".

**Student Academic Success Services (SASS):** [http://www.sass.umn.edu](http://www.sass.umn.edu)

Students who wish to improve their academic performance may find assistance from Student Academic Support Services. While tutoring and advising are not offered, SASS provides resources such as individual consultations, workshops, and self-help materials.

*Template update 8/2014*