PubH 7200 Section 101 Class #88344
Apps, Maps, & Google: Using technology-based Tools to Advance Public Health Research and Practice
May Term 2016

I. Course Description

It’s one thing to use apps, maps, and google (e.g., sheets, docs) in our personal lives to connect with friends, track physical activity, navigate to a new coffee shop, or collaborate on a written proposal; it’s another thing to proficiently use these tools in our public health work, locally and globally. Accessible, low cost technology solutions are often underutilized in public health despite their potential for maximizing impact and efficiency. Whether a community needs assessment in North Minneapolis, an innovative micro-financing intervention in Uganda, or a multi-site program monitoring and evaluation activity along the East Coast, existing technology tools could be used to strengthen outcomes. In this course we will practically examine and apply numerous technology solutions to common public health activities and challenges. We will examine solution types (i.e., android and iphone applications, cloud-based) and
purposes (i.e., data collection, management, transfer, and storage; GIS mapping, behavior tracking; team collaboration). Led by a public health nurse interventionist and an information technology entrepreneur, students will identify solution pathways for public health challenges and activities they care about. Emphasis in this course is on learning how to use what already exists (not to create new apps per se) and how to successfully advocate for using these technology tools in current public health practice arenas locally and globally. Come prepared to learn, discuss, and engage in hands-on skills building.

Competencies:
The core competencies identified in the HRSA Council of Linkages model that apply to this course include:

1. Analytical/Assessment Skills Tier 2
1.4 Uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information.
1.8 Collects valid and reliable quantitative and qualitative data

6. Public Health Sciences Skills Tier 2
6.5 Retrieves evidence from print and electronic sources to support decision making.

II. Course Prerequisites
None

III. Course Goals and Objectives
Upon completion of this course, students will be able to
- Identify three technology solutions for use in public health assessments, interventions or evaluations.
- Discuss ethical, security, and logistical considerations when using technology solutions in public health research and practice.
- Demonstrate ability to plan a technology solution for addressing a public health problem.

IV. Methods of Instruction and Work Expectations
Assigned Readings, Group Exercises
In this course we will use a variety of teaching methods and strategies including:
- Mini-lecture
- Large and small group discussions
- Time to practice with variety of technology tools

Grades will be assigned for:
(1) classroom participation (25 points) including asking questions, and participating in discussions and hands-on activities,
(2) two labs that will be completed inside and outside of class (50), and
(3) an individualized project (discussed first day of class) that will demonstrate student ability to incorporate technology tools into a public health activity (25 points).

V. Course Text and Readings
The required and optional readings are available through the UMN Library, which can be accessed through the course Moodle site.

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
PRIOR TO THE FIRST DAY OF CLASS

***Complete the below readings (Birn, 2005; Howitt et al, 2012) and visit the websites, then consider the following questions:

1. For the past 10 years (since Birn’s 2005 article) there have been significant technological advances (and uses) in public health practice and research. From local to global public health, what do you believe have been some of the most significant technology solutions used to advance public health? Which technology solutions do you feel continue to be underused in public health? Why?
2. Identify 2-3 public health priorities (using HP 2020, WHO, or MDG websites- see links in resources below) and begin to brainstorm a range of technology solutions that could be used in a variety of public health activities at (a) primary, secondary, and tertiary prevention levels and (b) for individuals, family/community, or system levels.

Readings:

Resources:

***View this presentation:
3. Security in the Cloud by John Snow (Google Enterprise Security Director)
https://atmosphere.withgoogle.com/live/security-in-the-cloud/watch/keynote/why-we-are-here
(45 minutes)

***Identify public health data:
4. Bring our own data or explore publically available data that you can use for hands-on activities and assignments during the week. Some public health data sources include:
   b. WHO Global Health Data Repository: http://apps.who.int/gho/data/node.home

ASSIGNED DURING THE WEEK (Refer to Course Outline)

Readings:


VI. Rough Course Outline

<table>
<thead>
<tr>
<th>Topics Covered</th>
<th>Readings/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete before class</strong></td>
<td><strong>See above</strong></td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Introductions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Course Expectations</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Overview of Technology Tools &amp; Solutions Used in Public Health</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Overview of the Cloud- Google</strong></td>
<td></td>
</tr>
<tr>
<td>- Data Management</td>
<td></td>
</tr>
<tr>
<td>- Collaboration</td>
<td></td>
</tr>
<tr>
<td><strong>Readings (for Tuesday content):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Data Assessment/Surveillance</strong></td>
<td></td>
</tr>
<tr>
<td>Colubri et al (2016). Transforming Clinical</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Tuesday</th>
<th>Data Tools Part 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab #1</td>
<td>Data capture (e.g., assessment, tracking)</td>
</tr>
<tr>
<td></td>
<td>Guest: GIS/Mapping: Examples in Public Health</td>
</tr>
<tr>
<td></td>
<td>Data manipulation/management</td>
</tr>
</tbody>
</table>

Readings (for Wednesday content):

**Social Media/Networks**
- Cobb et al. (2016). Diffusion of an Evidence-Based Smoking Cessation Intervention Through Facebook: A Randomized Controlled Trial.

**Push/Interactive Interventions**
- Franklin et al. (2016). A Brief Mobile App Reduces Nonsuicidal and Suicidal Self-Injury: Evidence From Three Randomized Controlled Trials.
- Wang et al. (2015). Wearable Sensor/Device (Fitbit One) and SMS Text-Messaging Prompts to Increase Physical Activity in Overweight and Obese Adults: A Randomized Controlled Trial.

**Data Visualization**

---

Data Security

Data into Actionable Prognosis Models: Machine-Learning Framework and Field-Deployable App to Predict Outcome of Ebola Patients.


**Mapping**


Nykiforuk & Flaman (2009). Geographic information systems (GIS) for health promotion and public health: a review.
<table>
<thead>
<tr>
<th>Wednesday</th>
<th>Intervention Tools</th>
<th>Data Tools Part 2</th>
<th>Readings (for Friday content):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Social media (e.g., health promotion campaigns)</td>
<td>- Data visualization</td>
<td>Security</td>
</tr>
<tr>
<td></td>
<td>- Push technologies (e.g., tailored preventive efforts)</td>
<td></td>
<td>Cisco 2016 Annual Security Report</td>
</tr>
<tr>
<td></td>
<td>Lab #2</td>
<td></td>
<td>Ethics/Safety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thursday</th>
<th>NO CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday</td>
<td>Dissemination Tools</td>
</tr>
<tr>
<td></td>
<td>Technology Security &amp; Ethics</td>
</tr>
<tr>
<td></td>
<td>- PHI, HIPAA, Etc</td>
</tr>
<tr>
<td></td>
<td>Wrap Up</td>
</tr>
</tbody>
</table>

### VII. Evaluation and Grading

Grading will be determined according to the following:

- Class participation (25 points, 25% of grade)
- Labs (50 points; 25 points each; 50% of grade)
- Project assignment (25 points, 25% of grade). Due date will be Friday of the week following the last day of class.

Late assignments will receive 5-point deductions each day late unless pre-arranged with faculty.

This course is offered S/N only

- S/N option must complete all assignments to a C- level (70%):

For additional information, please refer to:
http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html.

**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](http://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. The grading option for Public Health Institute courses may not be changed after the second day of class for 4-day courses. Grading options for 2 day courses may not be changed after the first day class.

**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.

#### WITHDRAWAL POLICY FOR PUBLIC HEALTH INSTITUTE COURSES
School of Public Health students may withdraw from a 4-day course through the second day of class without permission and no “W” will appear on the transcript. Students enrolled in 2-day courses may withdraw only through the first day of class. **After these withdrawal deadlines pass** students are required to do the following.

- The student must contact and notify their advisor and course instructor informing them of the decision to withdraw from the course.
- The student must send an e-mail to the SPH Student Services Center (SSC) at sph-ssc@umn.edu. The email must provide the student name, ID#, course number, section number, semester, and year with instructions to withdraw the student from the course, and acknowledgement that the instructor and advisor have been contacted.
- The advisor and instructor must email the SSC acknowledging the student is canceling the course. All parties must be notified of the student’s intent.
- The SSC will complete the process by withdrawing the student from the course after receiving all emails (student, advisor, and instructor). A “W” will be placed and remain on the student transcript for the course.

**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 to adhere to Board of Regents Policy: Student Conduct Code. To review the Student Conduct Code, please see:


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:


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:

**Disability Accommodations**
The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) 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 DS at 612-626-1333 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, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.
OR:

**Academic Freedom and Responsibility, for courses that 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 and conduct relevant research. 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.* When conducting research, pertinent institutional approvals must be obtained and the research must be consistent with University policies.

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, 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".

Template update 9/2014