

## INTRODUCTION TO PUBLIC HEALTH INFORMATICS

Spring 2024 | I320M | CRN 27460

### INSTRUCTOR

Stacy Jorgensen

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### PREREQUISITES

Credit for I301 (Introduction to Informatics) and I310M (Introduction to Health Informatics)

### LOCATION

In person: 8:00-9:30am TTh at University Teaching Center (UTC) 1.116

### COURSE DESCRIPTION

Introduction to Public Health Informatics (I320M) provides students with an overview of public health and the information systems used to achieve public health goals (i.e., prevent disease, promote health, and prolong life among the population as a whole). This course is divided into three parts: (1) overview of public health, (2) fundamentals of public health informatics, and (3) public health information systems. Students will learn core concepts of public health informatics through lectures, discussions, and individual and group projects. The overall goal of this course is to help students become ethical and competent professionals who can leverage public health informatics to enhance public health outcomes.

### LEARNING OUTCOMES

By the end of the course, students will be able to:

1. Define public health and explain its difference from healthcare.
2. Identify public health information systems and explain its purpose.
3. Explain how public health information systems are used to achieve public health outcomes.
4. Explain how policies influence the implementation of public health information systems.
5. Design and create a dashboard based on open-access public health data.
6. Generate public health insights based on information derived from a public health dashboard.

### REQUIRED TEXTBOOK

The primary textbook for this course is Public Health Informatics and Information Systems (3rd ed.). This book is available online at UT Libraries (downloadable as a whole or per chapter). Discussion materials can be accessed in Canvas.

### DEVICE REQUIREMENTS

You will need a computer capable of accessing the Internet, opening PDF files, installing and running Tableau, and creating documents and presentation slides.

## GRADING POLICY

Final grades will be assigned according to the traditional UT Austin grading scale:

Letter Grade	Percentage
A	≥90.0%
B	80.0-89.9%
C	70.0-79.9%
D	60.0-69.9%
F	<60.0%

## DROPPING AND Q-DROPS

If you realize you want to drop this course after the twelfth class day (Jan 31, 2024), you will need to execute a Q-drop before Mar 26, 2024. More information about Q-drops: <https://ugs.utexas.edu/vick/academic/adddrop/qdrop>

### Important dates

- Jan 31, 2024: Last day to drop a class without permission
- Mar 26, 2024: Last day an undergraduate may: Q-drop a class; withdraw; change a class to pass/fail

## EVALUATION

Your final course grade will reflect your effort to learn, understand, apply, assess, and interact with the material from the readings, assessments, and activities throughout the course. All work must be submitted to the course's Canvas site to receive credit; email submissions of assignments will not be accepted.

Late work is eligible for partial credit. The sooner the assignment is turned in after the due date, the greater the partial credit. Deadline extensions for full credit will be provided with a valid excuse, accommodation, or other reasonable explanation accepted by the course instructor.

Items will be weighted as follows to determine final course percentages.

Assignment	Weighting
Attendance and class participation	10%
Reflection (Best 9 of 11)	25%
Public health dashboard presentation – due Feb 29 by 8am	10%
Group project	
Proposal – due March 31 by 11:59pm	10%
Draft – due April 14 by 11:59pm	10%
Presentation – due April 18 by 11:59pm	10%
Final report – due April 29 by 11:59pm	15%
Peer evaluation – due April 29 by 11:59pm	10%

### Attendance and class participation

Active participation in the class is strongly encouraged. Attendance and class participation go hand in hand since it is not enough to just be physically present. **You are allowed two missed classes without deductions from your attendance and class participation grade.** It would be best to inform me if you will not be able to attend class. If this is not possible, let me know about it as soon as it is possible just to make sure that you are alright. If you need to miss more than two classes for medical or other reasons, please work with Student Emergency Services to excuse your absences through documentation. Moreover, if you will need to be absent due to religious holy day observance, please let me know. Also, you should definitely get in touch with me to talk about how we might limit the impact of absences on your grade.

### Reflections

Starting week 2, students will prepare and submit to Canvas a reflection piece about the assigned book chapter for that week. You need to discuss two insights that you learned from the assigned reading. Reflections are due in Canvas before the beginning of the TUE lecture class at 8:00am. The reflection piece should be focused on the required material, at least 100 words long, and should make it clear that you have both read and thought about the assigned material. The top 9 (out of 11 total) scores you receive on these reflection pieces will be counted toward your final grade in the course, the other scores will be dropped. This rubric will be used to assess reflection pieces:

5	Used at least 100 words to discuss two insights based on the assigned reading material.
4	Used at least 100 words to discuss one insight based on the assigned reading material.
3	Used less than 100 words to discuss two insights based on the assigned reading material.
2	Used less than 100 words to discuss one insight based on the assigned reading material.
1	Submitted reflection piece is not relevant to the assigned reading material.
0	No submission.

### Public health dashboard presentation

Based on an open-access public health dataset provided to the class, you will construct a dashboard using Tableau. I will provide guidance as you construct your dashboard. This individual activity will culminate in a class presentation wherein you will be given 1-2 minutes to present the features of your dashboard and one public health insight. The presentation will be evaluated by me and your classmates using the following rubric:

Criterion	Exemplary (4)	Target (3)	Acceptable (2)	Unacceptable (1)
Organization / Clarity	Ideas are presented in logical order with effective transitions between major ideas; presentation is clear and concise.	Most ideas are in logical order with adequate transitions between most major ideas; presentation is generally clear and understandable.	Some ideas not presented in proper order; transitions are needed between some ideas; some parts of presentation may be wordy or unclear.	Ideas are not presented in proper order; transition are lacking between major ideas; several parts of presentation are wordy or unclear.
Delivery of presentation	Good volume and energy; proper pace and diction; avoidance of distracting gestures; professional appearance; visual aids used effectively.	Adequate volume and energy; generally good pace and diction; few or no distracting gestures; professional appearance; visual aids used adequately.	More volume/ energy needed at times; pace too slow or fast; some distracting gestures or posture; adequate appearance; visual aids could be improved.	Low volume or energy; pace too slow or fast; poor diction; distracting gestures or posture; unprofessional appearance; visual aids poorly used.
Visualization objects in the dashboard	Properly used at least 5 visualization objects.	Properly used 3 or 4 visualization objects.	Properly used 2 visualization objects.	Properly used 1 visualization object.

Criterion	Exemplary (4)	Target (3)	Acceptable (2)	Unacceptable (1)
Visual appeal of the dashboard	Excellent visual appeal	Good visual appeal; There are some areas where the dashboard can be improved.	Acceptable visual appeal; There are several areas where the dashboard can be improved.	Not visually appealing.

### Group Project

Building on your experience of creating and presenting a dashboard using Tableau, this group project aims to provide you with skills on translating public health data into actionable public health insights. Instead of providing you with a dataset, your group will search for your own data. The data needs to be open-access and focuses on a public health issue. One of the outputs for the group project is a report (2,000-2,500 words) that describes the public health issue you are working on, the relevant dataset for that public health issue, the process of constructing your dashboard, and public health insights based on the results of your dashboard. The second output is a 8-10 minute presentation that summarizes your report. Listed below are the general requirements and components of the group project:

#### *General requirements for the group project*

- Format the paper using APA 7th ed. style, in letter size paper, 1" on all sides, Times New Roman, 12 font size, 1.5 spacing, and page number on the top right (no page number on title page).
- All files should be in PDF
- Use Canvas to submit your assignment. Sending via email will not be considered.
- I will deduct 1% for each day that the assignment is late (grade is 15% out of 20% but submitted 2 days late, so 13%).
- I will not accept assignments that are submitted more than 7 days after the due date.
- Deadlines may be adjusted for groups with members that have documented disabilities, health issues, or family emergencies. Please inform me about your situation ASAP.

All sources must be cited in the text with complete citation information in the references section. Using others' materials or ideas without proper citation and referencing constitutes plagiarism and can lead to academic consequences. Please use APA 7th edition style in your citations and references. You can use the Purdue University OWL guide for guidance in formatting your paper. Additional help can be obtained from UT's University Writing Center.

#### *Group project components*

Proposal (10%). Provide an overview of your group project by completing these sections (~ 1,000 words):

- Page 1 - A title page that shows your group number, group members, and initial project title. (2%)
- Introduction (2%; ~450 words)
  - Background of the public health issue
  - Briefly describe the dataset(s) that you will use that is relevant to your public health issue
  - Who are the stakeholders that would benefit from your dashboard and why?
- The dataset (2%; ~450 words)
  - Where did you get your dataset (provide a link to the dataset)?
  - Discuss how relevant and recent your dataset is in connection to your public health issue
  - Describe the variables included in the dataset
  - Indicate any issues with the dataset (linking multiple datasets, problems with data cleaning, missing values, etc.)

- Accountability statement (2% ~100 words)
  - Describe each member's role in the group project
- References (2%; excluded from the word count)

Draft (10%). In ~1,100 words, provide the following sections:

- Page 1 (1%) - A title page that shows your group number, group members, and initial project name.
- Introduction (2%; ~450 words)
  - Background of the public health issue
  - Briefly describe the dataset(s) that you will use that is relevant to your public health issue
  - Who are the stakeholders that would benefit from your dashboard and why?
- The dataset (2%; ~450 words)
  - Where did you get your dataset (provide a link to the dataset)?
  - Discuss how relevant and recent your dataset is in connection to your public health issue
  - Describe the dataset (format, sampling unit, sample size, variables, etc.)
  - Indicate any issues with the dataset (linking multiple datasets, problems with data cleaning, missing values, etc.)
- The dashboard (2%; ~200 words)
  - Present a draft of the dashboard (screenshot and submit the Power BI file as an attachment)
  - Provide a draft description of the dashboard (interface, features, new variables generated)
- Public health recommendations (2%)
  - List at least 3 public health recommendations based on your dashboard
- References (1%) - excluded from the word count)

Presentation (10%). You will have 8-10 min to present your work. You can opt to have one member do the presentation, or each member can cover a section of the presentation. Aside from me, students will use this rubric to evaluate each group's presentation (source):

Criterion	Exemplary (4)	Target (3)	Acceptable (2)	Unacceptable (1)
Organization / Clarity	Ideas are presented in logical order with effective transitions between major ideas; presentation is clear and concise.	Most ideas are in logical order with adequate transitions between most major ideas; presentation is generally clear and understandable.	Some ideas not presented in proper order; transitions are needed between some ideas; some parts of presentation may be wordy or unclear.	Ideas are not presented in proper order; transition are lacking between major ideas; several parts of presentation are wordy or unclear.
Delivery of presentation	Good volume and energy; proper pace and diction; avoidance of distracting gestures; professional appearance; visual aids used effectively.	Adequate volume and energy; generally good pace and diction; few or no distracting gestures; professional appearance; visual aids used adequately.	More volume/ energy needed at times; pace too slow or fast; some distracting gestures or posture; adequate appearance; visual aids could be improved.	Low volume or energy; pace too slow or fast; poor diction; distracting gestures or posture; unprofessional appearance; visual aids poorly used.
Visualization objects in the dashboard	Properly used at least 5 visualization objects.	Properly used 3 or 4 visualization objects.	Properly used 2 visualization objects.	Properly used 1 visualization object.
Visual appeal of the dashboard	Excellent visual appeal	Good visual appeal; There are some areas where the dashboard can be improved.	Acceptable visual appeal; There are several areas where the dashboard can be improved.	Not visually appealing.

Final report (15%). In ~2,100 words (excluding references, tables, figures, footnotes, and appendices), provide the following sections:

- Page 1 - A title page that shows your group number, group members, and initial project name.
- Executive summary (~200 words)
- Introduction (~450 words)
  - Background of the public health issue
  - Briefly describe the dataset(s) that you will use that is relevant to your public health issue
  - Who are the stakeholders that would benefit from your dashboard and why?
- The dataset (~450 words)
  - Where did you get your dataset (provide a link to the dataset)?
  - Discuss how relevant and recent your dataset is in connection to your public health issue
  - Describe the dataset (format, sampling unit, sample size, variables, etc.)
  - Indicate any issues with the dataset (linking multiple datasets, problems with data cleaning, missing values, etc.)
- The dashboard (~200 words)
  - Dashboard (screenshot and submit the Power BI file as an attachment)
  - Provide a draft description of the dashboard (interface, features, new variables generated)
- Public health recommendations (~600 words)
  - Discuss at least 3 public health recommendations based on your dashboard
- Conclusions (~200 words)
  - Summary of your work
  - Future work
- References (excluded from the word count)

This rubric will be used to grade your final report:

Criterion	Exemplary (4)	Target (3)	Acceptable (2)	Unacceptable (1)
Logic and organization	Develops ideas cogently, organizes them logically with paragraphs and connects them with effective transitions. Clear and specific introduction and conclusion.	Develops unified and coherent ideas within paragraphs with generally adequate transitions; clear overall organization relating most ideas together, good introduction and conclusion.	Develops and organizes ideas in paragraphs that are not necessarily connected. Some overall organization, but some ideas seem illogical and/or unrelated, unfocused introduction or conclusions.	Does not develop ideas cogently, uneven, and ineffective overall organization, unclear introduction, or conclusion.
Language	Employs words with fluency, develops concise standard English sentences, balances a variety of sentence structures effectively.	Word forms are correct, sentence structure is effective. Presence of a few errors is not distracting.	Word forms and sentence structures are adequate to convey basic meaning. Errors cause noticeable distraction.	Employs words that are unclear, sentence structures inadequate for clarity, errors are seriously distracting.

Criterion	Exemplary (4)	Target (3)	Acceptable (2)	Unacceptable (1)
Spelling and grammar	The writing is essentially error-free in terms of spelling and grammar.	While there may be minor errors, the writing follows normal conventions of spelling and grammar throughout and has been carefully proofread.	Frequent errors in spelling and grammar distract the reader.	Writing contains numerous errors in spelling and grammar which interfere with comprehension.
Development of ideas	Explores ideas vigorously, supports points fully using a balance of subjective and objective evidence, reasons effectively making useful distinctions.	Supports most ideas with effective examples, references, and details, makes key distinctions.	Presents ideas in general terms, support for ideas is inconsistent, some distinctions need clarification, reasoning unclear.	Most ideas unsupported, confusion between personal and external evidence, reasoning flawed.
Visualization objects in the dashboard	Properly used at least 5 visualization objects.	Properly used 3 or 4 visualization objects.	Properly used 2 visualization objects.	Properly used 1 visualization object.
Visual appeal of the dashboard	Excellent visual appeal.	Good visual appeal; There are some areas where the dashboard can be improved.	Acceptable visual appeal; There are several areas where the dashboard can be improved.	Not visually appealing.

Peer evaluation (10%). Please answer the survey (which will be posted in Canvas) about your peers' performance during the group project. Your grade for this component will be based on your and your peers' evaluations. The following questions will appear in the survey:

- Your estimate of each peer's contribution, including your own (i.e., you, peer 1, peer 2, and so on): 1 = poor 2 = fair 3 = good 4 = very good 5 = excellent
- Any members who were particularly strong, helpful, or enjoyable to work with?
- Any members who were less productive, disruptive, or difficult to work with?
- Any comments, ideas, or advice on how to improve the group project or the course?

## COURSE CALENDAR

All instructions, assignments, readings, rubrics, and essential information will be on the course's Canvas website. Check Canvas regularly. Changes to the schedule may be made at my discretion if circumstances require. I will announce any such changes in class and will also communicate them via a Canvas announcement. It is your responsibility to note these changes when announced, and I will do my best to ensure that you are notified of the changes with as much advance notice as possible.

Week	Topic	Due and Reminders
<b>Module 1: Overview of Public Health</b>		
Week 1	Jan 16	Course orientation
	Jan 18	Introduction to public health
Week 1 material • CDC (2021) Introduction to Public Health <a href="https://www.cdc.gov/training/publichealth101/documents/introduction-to-public-health.pdf">https://www.cdc.gov/training/publichealth101/documents/introduction-to-public-health.pdf</a>		
Week 2	Jan 23	Epidemiology
	Jan 25	Epidemiology in government organizations

Week	Topic	Due and Reminders	
Week 2 material <ul style="list-style-type: none"> <li>• CDC (2018) Introduction to Epidemiology <a href="https://www.cdc.gov/training/publichealth101/documents/introduction-to-epidemiology.pdf">https://www.cdc.gov/training/publichealth101/documents/introduction-to-epidemiology.pdf</a></li> </ul>			
Week 3	Jan 30	Public health surveillance	• Week 3 reflection
	Feb 1	TBD	
Week 3 materials <ul style="list-style-type: none"> <li>• CDC (2018) Introduction to Public Health Surveillance <a href="https://www.cdc.gov/training/publichealth101/documents/introduction-to-surveillance.pdf">https://www.cdc.gov/training/publichealth101/documents/introduction-to-surveillance.pdf</a></li> </ul>			
<b>Module 2: Fundamentals of Public Health Informatics</b>			
Week 4	Feb 6	Overview of public health informatics	<ul style="list-style-type: none"> <li>• Week 4 reflection</li> <li>• Download and install a student license of Tableau</li> </ul>
	Feb 8	Introduction to Tableau	
Week 4 materials <ul style="list-style-type: none"> <li>• Book chapters 1, 2, &amp; 4</li> <li>• Download Tableau Creator for students at <a href="https://www.tableau.com/academic/students">https://www.tableau.com/academic/students</a></li> <li>• Watch Tableau Creator training videos at <a href="https://www.tableau.com/learn/training">https://www.tableau.com/learn/training</a></li> </ul>			
Week 5	Feb 13	Data in public health informatics	• Week 5 reflection
	Feb 15	Tableau tutorial	
Week 5 materials <ul style="list-style-type: none"> <li>• Book chapters 7 &amp; 17</li> <li>• CDC (nd) Data Catalog. <a href="https://data.cdc.gov/browse">https://data.cdc.gov/browse</a></li> <li>• Center for Medicare and Medicaid Services. Search. <a href="https://data.cms.gov/search">https://data.cms.gov/search</a></li> <li>• National Cancer Institute. Public use dataset. <a href="https://hints.cancer.gov/data/download-data.aspx">https://hints.cancer.gov/data/download-data.aspx</a></li> <li>• US government. Browse. <a href="https://healthdata.gov/browse">https://healthdata.gov/browse</a></li> <li>• US government. Older Adults Health Data Collection <a href="https://catalog.data.gov/group/older-adults-health-data">https://catalog.data.gov/group/older-adults-health-data</a></li> </ul>			
Week 6	Feb 20	Public health information standards, interoperability, and exchange	• Week 6 reflection
	Feb 22	Work on dashboard	
Week 6 materials <ul style="list-style-type: none"> <li>• Book chapters 8 &amp; 18</li> </ul>			
Week 7	Feb 27	Privacy, confidentiality, and security in public health informatics	<ul style="list-style-type: none"> <li>• Week 7 reflection</li> <li>• Present dashboard to class</li> <li>• Form groups for group project</li> </ul>
	Feb 29	Dashboard presentation	
Week 7 materials <ul style="list-style-type: none"> <li>• Book chapters 9 &amp; 10</li> </ul>			
Week 8	Mar 5	Project management in public health informatics	<ul style="list-style-type: none"> <li>• Week 8 reflection</li> <li>• First meeting for group project</li> </ul>
	Mar 7	Topic brainstorming	
Week 8 materials <ul style="list-style-type: none"> <li>• Book chapter 13</li> <li>• CDC (nd) <i>About Project Management</i>. <a href="https://www2.cdc.gov/cdcup/library/other/about_pm.htm">https://www2.cdc.gov/cdcup/library/other/about_pm.htm</a></li> </ul>			



Week	Topic	Due and Reminders	
<b>Module 3: Public Health Information Systems</b>			
Week 9	Mar 19	Public health laboratories	• Week 9 reflection
	Mar 21	Propose dataset for group project	
Week 9 materials • Book chapter 15			
Week 10	Mar 26	Disease control and prevention information systems	• Week 10 reflection • Submit proposal (Mar 31 by 11:59pm)
	Mar 28	Work on group project	
Week 10 materials • Book chapter 14			
Week 11	Apr 2	Syndromic surveillance information systems	• Week 11 reflection
	Apr 4	Work on group project	
Week 11 materials • Book chapter 16			
Week 12	Apr 9	Public health information decision support systems and immunization support systems	• Week 12 reflection • Submit draft (Apr 14 by 11:59pm)
	Apr 11	Work on group project	
Week 12 materials • Book chapter 20			
Week 13	Apr 16	Course synthesis/work on group project	• Submit presentation slides (Apr 18 by 8:00am)
	Apr 18	Presentation	
Week 14	Apr 23	No class - work on group project	• Submit final report (Apr 29 by 11:59pm) • Submit peer evaluation (Apr 29 by 11:59pm)
	Apr 25	No class - work on group project	

There is no final exam for this course.

## DISABILITY AND ACCESS

At The University of Texas at Austin (UT Austin), we respect and welcome students of all backgrounds, identities, and abilities, and we are committed to creating an effective learning environment for all students. UT Austin provides appropriate academic accommodations for qualified students with disabilities upon request. For more information, contact Disability and Access (D&A) at 512-471-6259 (voice), 512-471-6441 (video phone) or visit them at <https://diversity.utexas.edu/disability/about/>. Students who use D&A services will be provided an accommodation letter, which should be reviewed with your professor. D&A accommodations are not applied retroactively. Please note that we respect your right to privacy and confidentiality. You are not obligated to share personal information with the professor or the grading team.