**Course Information**

**Course Title:** HIMT 350: Statistics for Healthcare  
**Prerequisites:** College algebra or equivalent  
**Credit Hours:** 3.0  
**Delivery Mode:** Online

**Instructor Information**

**Name:** Daniel J. McCarty, PhD  
**Home Campus:** UW-Stevens Point  
**Email:** [dmccarty@uwsp.edu](mailto:dmccarty@uwsp.edu)  
**Phone:** (715) 346-2506 (office)  
**Office Hours:** By appointment  
**Instructor Bio:** See the [Welcome](/courses/548481/pages/welcome) video for more information about the instructor and the course.

**Note:** I will access the course daily to respond to posts. The [Ask the Instructor, Ask a Peer](/courses/548481/discussion_topics/4024812) discussion board is a good place to leave your course-related questions. Private matters should be emailed directly to me. I will also be checking my email frequently during working hours so I can respond to your questions and concerns in a timely manner.

**Course Description**

This is an introductory course in statistical methods used in applied research for the biological sciences. The course will emphasize the principles of statistical reasoning, underlying assumptions, hypothesis testing, and careful interpretation of results. Some topics covered: descriptive statistics, graphical displays of data, probability, confidence intervals and tests for means, differences of means, sample size and power, differences of proportions, chi-square tests for categorical variables, regression, multiple regression, and non-parametric statistics.

**Learning Objectives**

This course will emphasize much more than just number crunching. You will develop a new set of reasoning skills that will provide a foundation for designing, analyzing and interpreting research in the biological sciences. This knowledge and these skills are essential in today’s healthcare environment, which emphasizes evidenced-based healthcare and health outcome evaluation.

Students may vary in their competency levels on these objectives. You can expect to acquire these skills only if you honor all course policies, complete all assigned work in good faith and on time, and meet all other course expectations as a student. At the conclusion of this course, you will able to:

* Articulate the basic concepts and techniques of statistics for healthcare.
* Appreciate the vital role of statistics in determining study designs.
* Apply statistical analyses to conduct and interpret healthcare data.
* Demonstrate the scope of statistics and its essential role in promoting evidenced-based healthcare and health outcome evaluation.

**HIM Curriculum Competencies**

This course presents the 2018 AHIMA/CEE Health Information Management Baccalaureate Degree competencies: **Bolded competencies meet the accreditation standard/s at the appropriate Bloom’s level.**

* **III.3 Interpret statistics for health services (Bloom's level 5)**
* **III.4 Examine healthcare findings with data visualizations (Bloom's level 4)**
* III.5 Compare research methodologies pertaining to healthcare (Bloom's level 2)

**Course Materials**

**Required Textbook**

**Title:** Basic Biostatistics: Statistics for Public Health Practice (2nd edition, 2015)  
**Author:** B. Burt Gerstman  
**ISBN-13:** 978-1284025460

**Required Technology**

Access to a computer and high-speed Internet connection that is capable of accessing Canvas is a requirement of this course.

**Required Software**

For our statistical analysis work in this course, we will be using Excel. More information on how to access the Data Analysis ToolPak is located on the [Technical Requirements](/courses/548481/pages/himt-350-technical-requirements) page located in the Course Information module.

**Course Outline**

* Lesson 1a: Introduction to Statistics for Healthcare
* Lesson 1b: Introduction to Chance and Probability
* Lesson 2: Measurement
* Lesson 3: Major Study Designs
* Lesson 4: Sampling
* Lesson 5: Frequency Distributions
* Lesson 6: Summary Statistics
* Lesson 7: Data Report and Presentation
* Lesson 8: Probability Concepts
* Lesson 9: Binomial Probability Distributions
* Lesson 10: Normal Probability Distributions
* Lesson 11: Introduction to Statistical Inference
* Lesson 12: Basics of Hypothesis Testing
* Lesson 13: Confidence Intervals
* Lesson 14: Inferences about a Mean
* Lesson 15: Comparing Independent Means
* Lesson 16: Comparing Several Means
* Lesson 17: Correlation and Regression
* Lesson 18: Multiple Linear Regression
* Lesson 19: Proportions and Vital Statistics
* Lesson 20: Chi-sq test

**Course Policies**

**Statement of Student Time Commitment**

For each course credit, students are expected to spend a minimum of 3 hours per week on course work. Therefore, for a 3-credit course, at least 9 hours per week are expected (more in an upper-level course). This is a general guideline, which will vary depending on the assignments.

You are expected to log on to the course website several times every week to read announcements, and complete and submit assigned work. You are expected to find off-line time to complete reading assignments and homework assignments.

**Announcements**

The Announcements area in Canvas will be used as a means of communication. Please check it on a regular basis to keep current; setting your notifications to alert you to new announcements is recommended. The syllabus, schedule, and assignments are all subject to change. Any changes or need for additional information affecting the course as a whole will be communicated in the Announcement area.

Please note that you are responsible for anything I send you via email.

**Communicating with your Instructor via Email**

I check my email frequently during the day. However, I receive a lot of email and I sometimes delete emails that do not have the subject specified. If you have not received a response to your email within 24 hours, please resend your email.  I do not check email routinely at home or on weekends. Please remember that these are professional communications, so please use full sentences and complete words.

**Assignment Submission**

All assignments will have a specified due date. All work is due at 11:59 pm CST unless otherwise noted.

You must submit one copy of your homework by the specified due date. Late assignments may be accepted but these will receive a lower grade. *If you have any concern about meeting the requirements of this course, please contact me*.

Legitimate emergencies do occur and may prevent the completion of course work by the designated time. Please inform me as soon as possible when emergency situations occur and indicate your plans for completing the work. Extension of the completion time will be considered on an individual basis.

Note All University of Wisconsin system schools use Central Standard Time (CST) as the default time zone for Canvas courses. However, if you download and use the Canvas app, due dates displayed will default to the time zone settings of the device you are using. To avoid this, and for the best Canvas user experience, it is recommended that you access this course via the full version of Canvas rather than the app.

**Grading**

**Course Grades**

Grades will be based on your performance of the following items:

|  |  |
| --- | --- |
| **Activities** | **Percent of Final Grade** |
| Lesson Quizzes | 20% |
| Activities | 10% |
| Exam 1 | 20% |
| Exam 2 | 20% |
| Final Exam (comprehensive) | 30% |
| Total | 100% |

**Grading Scale**

|  |  |
| --- | --- |
| **Percentage** | **Letter Grade** |
| 90-100% | A |
| 80-89% | B |
| 70-79% | C |
| 60-69% | D |
| 0-59% | F |

**Grading Criteria**

“A” reflects exceptional work (going beyond the basics, integrating material well, displaying professionalism in individual and group work, application and demonstration of knowledge and skills, showing initiative, using creativity, writing is reflective of multiple drafts).

“B” reflects good work (valuable teamwork skills, active in class, ability to grasp basic concepts and apply to new situations, some participation in class, completes all assignments with a degree of proficiency but may not demonstrate initiative, creativity or reflection consistently, writing contains errors or lacks conciseness and completeness).

“C” reflects average work (assignments are completed at the minimum, basic concepts are grasped but cannot be applied, some difficulty in group work, spelling and grammar mistakes are common, writing is conversational in tone with little attention paid to detail, word choices, organization (rough draft quality), little participation in class.

Course Summary:

| **Date** | **Details** | **Due** |
| --- | --- | --- |
| Sun Jan 29, 2023 | Quiz [L1 Part A: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495120) | due by 11:59pm |
| Quiz [L1 Part B: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495138) | due by 11:59pm |
| Discussion Topic [Class Introductions](https://uwstp.instructure.com/courses/548481/discussion_topics/4024813) | to do: 11:59pm |
| Sun Feb 5, 2023 | Quiz [L2: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495132) | due by 11:59pm |
| Quiz [L3: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495124) | due by 11:59pm |
| Sun Feb 12, 2023 | Quiz [L4: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495133) | due by 11:59pm |
| Quiz [L5: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495122) | due by 11:59pm |
| Wed Feb 15, 2023 | Discussion Topic [L7: Discussion - Data Presentation - Initial Post](https://uwstp.instructure.com/courses/548481/assignments/5495142) | due by 11:59pm |
| Sun Feb 19, 2023 | Quiz [L6: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495127) | due by 11:59pm |
| Quiz [L7: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495135) | due by 11:59pm |
| Page [L7: Discussion - Data Presentation - Reply Posts](https://uwstp.instructure.com/courses/548481/pages/l7-discussion-data-presentation-reply-posts) | to do: 11:59pm |
| Sun Feb 26, 2023 | Quiz [L6: Activity 1 Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495115) | due by 11:59pm |
| Quiz [L10: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495118) | due by 11:59pm |
| Assignment [L6: Activity 1 - Submission](https://uwstp.instructure.com/courses/548481/assignments/5495155) | due by 11:59pm |
| Quiz [L8: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495121) | due by 11:59pm |
| Quiz [L9: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495117) | due by 11:59pm |
| Sun Mar 5, 2023 | Quiz [L11: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495112) | due by 11:59pm |
| Quiz [L12: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495130) | due by 11:59pm |
| Quiz [L13: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495128) | due by 11:59pm |
| Sun Mar 12, 2023 | Quiz [Exam 1](https://uwstp.instructure.com/courses/548481/assignments/5495114) | due by 11:59pm |
| Sun Mar 19, 2023 | Quiz [L14: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495136) | due by 11:59pm |
| Sun Mar 26, 2023 | Quiz [L15: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495126) | due by 11:59pm |
| Sun Apr 2, 2023 | Quiz [L16: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495140) | due by 11:59pm |
| Sun Apr 9, 2023 | Quiz [L15: Activity 2 Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495131) | due by 11:59pm |
| Quiz [L17: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495116) | due by 11:59pm |
| Assignment [L15: Activity 2 - Submission](https://uwstp.instructure.com/courses/548481/assignments/5495151) | due by 11:59pm |
| Sun Apr 16, 2023 | Quiz [L18: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495134) | due by 11:59pm |
| Sun Apr 23, 2023 | Quiz [Exam 2](https://uwstp.instructure.com/courses/548481/assignments/5495113) | due by 11:59pm |
| Assignment [L16: Activity 3 - Submission](https://uwstp.instructure.com/courses/548481/assignments/5495152) | due by 11:59pm |
| Quiz [L16: Activity 3 Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495139) | due by 11:59pm |
| Assignment [L17: Activity 4 - Submission](https://uwstp.instructure.com/courses/548481/assignments/5495153) | due by 11:59pm |
| Quiz [L17: Activity 4 Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495129) | due by 11:59pm |
| Sun Apr 30, 2023 | Quiz [L19: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495125) | due by 11:59pm |
| Assignment [L20: Activity 5 - Chi-Sq - Submission](https://uwstp.instructure.com/courses/548481/assignments/5495154) | due by 11:59pm |
| Quiz [L20: Activity 5 Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495123) | due by 11:59pm |
| Quiz [L20: Quiz](https://uwstp.instructure.com/courses/548481/assignments/5495141) | due by 11:59pm |
| Fri May 5, 2023 | Quiz [Final Exam Part A](https://uwstp.instructure.com/courses/548481/assignments/5495119) | due by 11:59pm |
| Quiz [Final Exam Part B](https://uwstp.instructure.com/courses/548481/assignments/5495137) | due by 11:59pm |