**Syllabus HS 395 – Fall 2021**

**Fundamentals of Epidemiology**

**Instructor:            Daniel J. McCarty, PhD**

**Office:                  D143 Science Building**

**Phone:                  (715) 346-2508 (Office)**

**E-mail:           dmccarty@uwsp.edu**

**Course description**

Fundamentals of Epidemiology (HS 395 – 3 credits)

 Epidemiology is often referred to as “the basic science of public health”. This class introduces the principles and methods of epidemiology as it applies to health promotion and healthcare delivery. The course will cover a historical perspective of epidemiology, measures of disease occurrence and association, clinical epidemiology, major epidemiological study designs, disease screening, causal inference and common methods for identifying and controlling infectious disease outbreaks.  Prerequisite:  Math 255 or HS301 or equivalent.

 **Format**

In-person (section 1) and fully online format (section 2) with out-of-class narrated lectures and discussions.

**Textbook**

Epidemiology (4rd Edition) by Leon Gordis

**General goals and objectives**

At the conclusion of this course, students will able to:

1. Articulate the basic epidemiologic study designs and statistics used for measuring risk factor/disease associations.
2. Apply knowledge of epidemiology to identify the strengths and weaknesses of published studies.
3. Demonstrate the importance of using epidemiologic data to design disease prevention programs.
4. Appreciate the scope of epidemiology and its potential application for health promotion and improving healthcare delivery.

**Grading system**

93 – 100                      A                                             77 – 79                        C+

90 – 92                        A-                                            73 – 76                        C

87 – 89                        B+                                           70 – 72                        C-

83 – 86                        B                                             67 – 69                        D+

80 – 82                        B-                                            60 – 66                        D

                                                                                    Below 60                    F

“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.

**Student responsibilities for successful coursework:**

Attendance: Participation on online lessons and quizzes will constitute attendance.  Please notify the instructor by email if an absence is anticipated.

Reading Assignments: Additional readings will be posted in Canvas.  Students will be more successful in the class if the text and other handouts are read before the class period during which a given topic will be covered. The course is focused on discussion and analysis of topics. Readings will prepare you for participation in class.

**Derivation of course grade**

Three 1-hour exams (15% each - multiple choice)                45%

Quizzes/Activities                                                                      20%

Final exam (comprehensive)                                                      35%

**Other class information**

Email – please note that you are responsible for anything I send you via email.

**Lecture materials and recordings for HS395 are protected intellectual property at UW-Stevens Point.** Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] **Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities.**  Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor’s express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

**Face Coverings (when on campus):**

* At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the Disability and Assistive Technology Center to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

Other Guidance:

* Please monitor your own health each day using the screening tool. If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646). As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
* Maintain a minimum of 6 feet of physical distance from others whenever possible.
* Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
* Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
* Please maintain these same healthy practices outside the classroom.

**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 which 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 on some weekends.

**Students with special needs**

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments.  If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6thfloor of Albertson Hall (library) as soon as possible.  DATC can be reached at 715-346-3365 or DATC@uwsp.edu.

**The contents of this syllabus are as complete and accurate as possible.  The instructor reserves the right to make any changes necessary to the syllabus and course material. The instructor will make every effort to inform the students of changes as they occur.  It is the responsibility of the student to know what changes have been made to successfully complete the requirements of the course. Any in-class announcement, verbal or written, is considered official addendum to this syllabus.**

**Course Calendar**

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| **Date** | **Topics** |
| Week 1, Sept 2nd | Lesson 1a: Course Overview / What is Epidemiology? |
| Week 2, Sept 5th | Lesson 1b and 1c: Overview of Epidemiology |
| Week 3, Sept 12 | Lesson 2: The Role of Chance: Probability, Fallacies and Monty HallLesson 3: History of Epidemiology – from limes to pump handles |
| Week 4, Sept 19th | Lesson 4a Descriptive StudiesLesson 4b: Descriptive Studies |
| Week 5, Sept 26 | Lesson 5: Rates and DemographyLesson 6: Ecological Studies and Causality |
| Week 6, Oct 3 | Lesson 7: Case Control StudiesLesson 8: Sampling |
| Week 7, Oct 10 | Lesson 9: Cohort StudiesLesson 10: Odds Ratios and Relative Risks |
| Week 8, Oct 17th | **Exam 1** |
| Week 9, Oct 24 | Lesson 11a: Randomized Controlled Trials (RCTs) OverviewLesson 11b: Randomized Controlled Trials Methods |
| Week 10, Oct 31 | Lesson 12: Community Intervention StudiesLesson 13: Meta-Analysis and Evidenced-Based Medicine |
| Week 11, Nov 7th | Lesson 14: P-Values and 95% Confidence IntervalsLesson 15: Screening: sensitivity and specificity |
| Week 12, Nov 14th | **Exam 2** |
| Week 13, Nov 21st | Lesson 16: Overview of Infectious Disease EpidemiologyThanksgiving  |
| Week 14, Nov 28 | Lesson 17: Outbreak Investigation MethodsLesson 18: Oswego Outbreak Investigation and The great Milwaukee Crypto outbreak (video) |
| Week 15, Dec 5th | **Exam 3**Lesson 19: Diabetes Pandemic talk |
| Week 16, Dec 15th | **Final Exam 10:15am to 12:15pm** |