**SYLLABUS HAP – 464**

SPRING 2021

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| Course number and section:  Course title:  Class schedule: | **HAP 464**  **ELECTRONIC HEALTH RECORD CONFIGURATION AND DATA ANALYSIS**  **Time: 1:30 PM – 4:10 PM on Thursdays** |
| Course Placement: | ( ) Core ( ) Concentration ( ) Elective ( ) Pre-requisite(s)  ( ) Course(s) recommended before taking this course: |
| Instructor: | Please connect to your instructor on the LinkedIn ® page. Students often use the contacts of the instructor to get practicum placements. |
| Course Description: | Focuses on analysis of data from electronic health records. Includes instruction on preparation of data including (a) removing inaccurate information, (b) organizing the timing of events/variables, (c) summarizing time-based variables. Students focus on accurate measurement of patient’s prognosis. SQL is used to create Charlson and Multi-morbidity indices. Students must complete a literature review, describe methods used, present results, and discuss findings. |
| Course Objectives: | 1. Structure a problem so that quantitative analysis can assist in solving the problem of a specific Cancer based on Patient’s data 2. Obtain relevant data for a type of Cancer 3. Complete a comprehensive review of previous studies of the same problem 4. Clean data by removing out of range values 5. Apply a rule for how missing data will be examined 6. Check assumptions of the method of analysis 7. In cross-sectional analysis of variables, summarize time-based clinical labs 8. Use panel or longitudinal data to specify sequence of events 9. Specify the time sequence for measuring covariates, treatment, and outcome. 10. Select appropriate method of data analysis and removal of confounding in the data 11. Visually present complex multivariate data 12. Interpret quantitative findings and relate it to specific policy issues or management decisions 13. Describe limitations of the quantitative data 14. Present data to audiences with and without familiarity with the methods used 15. Prepare multi-media reports of findings |
| Required Textbook: | This course uses an open textbook. Required reading are posted to the course web pages, no purchase is necessary. |
| Course Requirements: | To benefit from this course students, need to have a prior course in use of Standard Query Language. |
| Teaching Methods: | 1. Learn one, do one, teach one. Students learn better when they do projects and teach the concepts covered in the lectures. For selected assignments, students are asked to comment on the work of their colleagues using a rubric provided by the instructor. 2. Experiential course. In this course, students learn by doing. They are asked to repeatedly use SQL to prepare practical screening tools. These repetitions are not expected to teach concepts but make the student more proficient and confident in using SQL. The course uses class time to provide hands-on experience with the assignments. 3. Collaborative. Students act in teams. Students are expected to collaborate with each other. **You are graded on how much you help others.** |
| Teamwork | Students are encouraged to work together, to help each other find errors, to help code, but all students are required to submit separate assignments including separate code for the analysis and interpretation of the data |
| Evaluation and Grading: | |  |  | | --- | --- | | **Assignment** | **Percent of Grade** | | Project 1 | 15% | | Project 2 | 15% | | Teach One | 15% (peer grade) | | Presence | 15% | | Midterm | 20% | | Final | 20% | |
| Grading Scale: | |  |  | | --- | --- | | **Score** | **Letter Grade** | | 96+ | A | | 90-95 | A- | | 86-89 | B+ | | 74-85 | B | | 70-74 | C | | 70 - | F | |
| Academic Integrity: | The projects in this course are collaborative effort. **It is OK to copy** portion of code from others doing same project and with their permission. However, there must be clear evidence that you have developed the full code by yourself. You are responsible for the entire work. The presentation of the code must also be exclusively done by you, without copying presentation of others. Exams are not collaborative and must be done individually without help from anyone inside or outside the course. |
| Individuals with Disabilities: | The Office of Disability Services (ODS) collaborates with students with documented disabilities and faculty to provide reasonable accommodations, auxiliary aids, and support services that are individualized and based upon medical documentation, functional limitations, and a collaborative assessment of needs. In order to receive accommodations, students must complete the following process: <http://ods.gmu.edu/students/services.php> |
| E-mail Policy: | Mason uses electronic mail to provide official information to students. Examples include notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly. Students are also expected to maintain an active and accurate mailing address in order to receive communications sent through the United States Postal Service.  (Official Communication with Students [https://catalog.gmu.edu/policies/student-rights-responsibilities/#text](https://catalog.gmu.edu/policies/student-rights-responsibilities/%23text)) |
| **COURSE SCHEDULE** | |
| Weeks | Topics |
| 1 | Introduction,  Data Download,  Software Download,  Sign Up for Teach One |
| 2 | Project 1: Charlson Deyo Index  Basic SQL and Data Cleaning |
| 3 | Project 1: Charlson Deyo Index  SQL for Scoring the Index |
| 4 | Project 1: Charlson Deyo Index Accuracy of Predictions |
| 5 | Project 1 Presentations |
| 6 | Midterm Exam |
| 7 | Project 2: Multi Morbidity Index  Calculation of Likelihood Ratios |
| 8 | Project 2: Multi Morbidity Index Ontological Adjustments of Likelihood Ratios |
| 9 | Project 2: Multi Morbidity Index  Body System Progression |
| 10 | Project 2: Multi Morbidity Index  Accuracy of Predictions |
| 11 | Project 2: Presentations |
| 12 | Review |
| 13 | Final Exam |