



**SIMON**  
BUSINESS SCHOOL  
UNIVERSITY of ROCHESTER

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**HSM 465 – Healthcare Data Visualization and Analytics**

Credit Hours: 2.5

Spring A 2025

**Draft 11/6/2024**

Course Logistics:

Meeting time: Wednesdays 5:40 – 9pm

Location: TBD

This is a “hyflex” class, which means you can attend in-person or on Zoom.

Instructors:

Roy Jones [rjones@simon.rochester.edu](mailto:rjones@simon.rochester.edu)

Jack Bramley [john\\_bramley@urmc.rochester.edu](mailto:john_bramley@urmc.rochester.edu)

Office Hours: Please email either of us to set up a zoom meeting.

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**Course Information**

1. Course Description

The focus of the course is on learning to analyze and gain insights from healthcare datasets. An important component of the course learning will be a term-long project (see the Evaluation and Grading section below for more detail). Tableau will be taught as a data visualization tool and you will learn to clean a dataset, interactively analyze a dataset, visualize insights, as well as publish and maintain a dashboard. Related topics will also be covered including data literacy, data governance, and inference. Learning objectives include:

- Developing a goal for analysis;
- Preparing a dataset for analysis;
- Interactively analyzing a healthcare dataset;
- Using Tableau as a data visualization tool;
- Data literacy, e.g., using existing dashboards to answer questions;

- Understand what is involved in publishing and maintaining dashboards.

## 2. Relationship with other courses at Simon

There are no prerequisites for this course beyond basic Excel knowledge.

## 3. Recommended Textbook

[Tableau for Healthcare](#) by Daniel Benevento, Katherine Rowell, and Janet Steeger, 4<sup>th</sup> edition, 2021.

## 4. Evaluation and Grading

The course grade is based on the following:

Assignments	30%
Project	25%
Final Exam	45%
<b>Total</b>	<b>100%</b>

The homework assignments and project will be done in teams. There will be roughly weekly assignments developing the skills necessary to complete the project.

The goal of the project is to analyze a healthcare data set, create visualizations, and share what you learned. If you already have a dataset you'd like to use, you may use that, subject to our approval. If not, we have a synthetic data set you may use. Project deliverables and due dates are as follows:

Project Proposal	January 26 <sup>th</sup> , 2024
Project Introduction	January 29 <sup>th</sup> , 2024
Project Troubleshooting	February 12 <sup>th</sup> , 2024
Project Presentation	February 26 <sup>th</sup> , 2024

The project presentation should be roughly 10 – 15 minutes. Here is a possible outline:

- What you did
- How you addressed challenges
- What you learned
- Any cool tableau functionality you used that wasn't taught or taught in detail
- What questions the project raised
- Anything else potentially of interest to the class, e.g.,
  - What visualization you're most proud of and why
  - Biggest mistake you made
  - What you wished you'd figured out much sooner
  - How you used AI (if at all)

You do not need to follow this outline and it's very unlikely all of these are worth mentioning to the class for a single project. This outline is just to give you a rough idea...

Final Exam: The final exam schedule will be finalized early in the term and announced in class and on Blackboard. The best bet is that the exam will be from 6 – 9pm on Wednesday, March 5<sup>th</sup>. The exam will be mostly short-answer questions covering key course concepts.

#### 5. Inclusivity Statement

At Simon, we strive to foster and cultivate an environment where every member of the Simon community feels supported, valued, and welcome. If something is said or done in class (by anyone) that makes you feel uncomfortable, please bring it to my attention privately (directly or anonymously through a staff member you trust).

#### 6. Accommodations and Accessibility

Both Simon and the University of Rochester respect and welcome students of all backgrounds and abilities. In the event you encounter any barriers to full participation in this course due to the impact of a disability, please contact both your instructor and the Office of Disability Resources as soon as possible. The access coordinators in the Office of Disability Resources will meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can reach the Office of Disability Resources at (585)276-5075 or at [disability@rochester.edu](mailto:disability@rochester.edu). More information can be found at <https://www.rochester.edu/college/disability/>.

#### 7. Credit-Hour Policy Adherence

This course follows the Simon credit-hour policy for 2.5-credit courses. The course meets once a week for 3 hours per week. In addition to these 3 hours of class sessions per week, students are required to complete approximately one hour per week on average of asynchronous learning activities.

Students are also expected to supplement each hour of class or asynchronous learning activities with two hours of supplemental work (e.g., preparing for class, reviewing notes, class readings, assignments, and project work), yielding a total of 9 hours outside of class (including the 1 hour of asynchronous content) per week for a 2.5 credit course.

Across the term and across all activities, students should expect to spend 37.5 hours per credit hour earned.

#### 8. Academic Integrity

Simon's Code of Academic Integrity (see the section Academic Integrity Policy in the [Simon School Student Handbook](#)) states: *"Every Simon student is expected to be completely honest in all academic matters. Simon students will not in any way misrepresent their academic work or attempt to advance their academic position through fraudulent or unauthorized means. No Simon*

*student will be involved knowingly, or unknowingly yet passively within a team, with another student's violation of this standard of honest behavior."*

In addition to refraining from obvious forms of cheating and plagiarism:

- On assignments, do not copy or paraphrase work from each other, from students who have taken the class previously, from materials distributed in a previous class, or from outside sources. Any written work should be entirely your own (or your team's, as applicable).
- Exams or assignments that include an Academic Integrity/Honesty Pledge must have the pledge signed.
- Do not obtain advice, notes, solutions, or other material from students who took the class previously in ways that would give you an unfair advantage or would undermine the learning experience for you and the class (such as, notes from past case discussions). Similarly, do not use others' case analyses posted on-line.
- Use quotation marks when quoting any text directly. Changing a few words of a sentence or longer section does not make the work your own. Independently written texts rarely have even five consecutive words in common.
- Students may not audio or video record class lectures or other classroom or laboratory activities without the instructor's permission.
- Students may not publish, distribute, or sell—electronically or otherwise—any course materials that the instructor has developed in any course of instruction in the University (e.g., presentation slides, lecture aids, video or audio recordings of lectures, and exams) without the explicit permission of the instructor.

Most forms of disallowed shortcuts are easy to detect and will be referred to the school's Academic Integrity Committee. Please refer to the Student Handbook for any questions regarding the Code of Academic Integrity.

If a situation in your professional or personal life prevents you from finishing assigned work in a timely manner, please contact me before the deadline to discuss how to proceed. You should also contact your OSE advisors, if appropriate. Do not violate the Academic Integrity Code in an attempt to manage a difficult situation.

## 9. Professionalism and Attendance

Please review the Professional Standards Policy in the Simon School Student Handbook. Students are expected to demonstrate the same professional behavior in class as they would in a business setting.

Use of laptops and cell phones: You are allowed to use laptops and tablets during lecture, but they should only be used for coursework related activities and not for email, social media, or other activities not directly related to the course. Cell phones must be turned off or silenced during class. No photography or recording of any kind is allowed, without express consent from the instructor(s).

## 10. AI Use Policy

The AI use policy for the course is shown below.

<b>COURSE</b>	<b>EXAM</b>	<b>DISCLOSURE POLICY</b>
<p data-bbox="391 436 574 468"><b><i>Unless I Say No</i></b></p> <p data-bbox="334 510 631 678">Students are encouraged to use AI when helpful unless specifically forbidden for particular student work.</p>	<p data-bbox="688 436 935 468"><b><i>Only When I say Yes</i></b></p> <p data-bbox="667 510 956 678">Students should not use AI for any part of the exam except where the instructor gives explicit permission.</p>	<p data-bbox="1008 436 1268 468"><b><i>Citation + Description</i></b></p> <p data-bbox="1000 520 1276 688">Include a citation along with a sentence or two stating how generative AI was used in your work.</p>

## Course Outline and Schedule

### Session 1 – Wednesday, January 15<sup>th</sup>

- Course Introduction
- Introduction to Data Visualization
- Pivot Tables

### Session 2 – Wednesday, January 22<sup>nd</sup>

- Relational databases and database design
- Clinical, operational, and payor data and uses
- Data visualization tools
- Introduction to Tableau including basic visualizations, calculated fields, and maps
- Data literacy

### Session 3 – Wednesday, January 29<sup>th</sup>

- Project Introductions
- Choosing KPIs
- More Tableau including interactive parameters, multiple axes, and dashboards
- Cleaning datasets and Tableau Prep

### Session 4 – Wednesday, February 5<sup>th</sup>

- Arcadia Medical Center Emergency Department Crowding case discussion
- More Tableau including table calculations, filters, and interactivity
- Combining datasets

### Session 5 – Wednesday, February 12<sup>th</sup>

- Project troubleshooting
- Groups and Sets
- Publishing and maintaining dashboards
- Performance tuning
- Enhancing dashboards with AI/ML
- Data Governance
- Advanced Tableau including animations, level of details syntax, and dashboard design

### Session 6 – Wednesday, February 19<sup>th</sup>

- Guest lecture: Conrad Gleber, MD, MBA, Associate Chief Medical Information Officer, URMC
- Case TBD

### Session 7 – Wednesday, February 26<sup>th</sup>

- Guest lecture: Eric Snyder, Executive Director, Health Technology Innovation Wilmot Cancer Institute, URMC
- Project Presentations
- Course Wrap-up

**Final Exam – Schedule TBA, most likely Wednesday, March 5<sup>th</sup>, 6 – 9pm**