Course Syllabus  
ISTE.782.01 Visual Analytics

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| Class Time and Location: | TuTh 11:00 to 12:15 GOL 2520 |

# Instructor Information

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| Instructor: | Charles Border, Ph.D. Associate Professor  School of Information |
| Contact Information: | Office: GOL-2615  Phone: 585-475-7946  Email: cbbics@rit.edu |
| Contact Policy and Preferences: | Office hours: TTH 12:30 to 2:00 |
| Online Course Material/Course Webpage: | All course materials will be available through MyCourses |

# Course Description

**ISTE.782 Visual Analytics**

This course introduces students to Visual Analytics, or the science of analytical reasoning facilitated by interactive visual interfaces. Course lectures, reading assignments, and practical lab experiences will cover a mix of theoretical and technical Visual Analytics topics. Topics include analytical reasoning, human cognition and perception of visual information, visual representation and interaction technologies, data representation and transformation, production, presentation, and dissemination of analytic process results, and Visual Analytic case studies and applications. Furthermore, students will learn relevant Visual Analytics research trends such as Space, Time, and Multivariate Analytics and Extreme Scale Visual Analytics.

## Team Labs

Very little work in the field of information technology or analytics is done by an individual working alone. Most technology workers spend most of their time working as members of teams serving various roles on different projects. We will follow that model in this class. There will be four team lab assignments in the class, three where I will assign the project area (I will give you a general theme and you will develop a dashboard around the issues in that theme), and a team project in an area of your own choice.

One of the hardest things about working in a team is coordinating the activities of each of the team members. To facilitate and coordinate your team members we will be using Azure DevOps from Microsoft. As RIT students you get a free license to use Azure DevOps in groups of up to five members. To get the maximum benefit out of using Azure DevOps it really helps if one member of the team is responsible for the general coordination of the entire group as the project manager. The project manager will plan the work of the group members and coordinate things like the selection of the dataset, color schemes, dashboard layouts, etc. Team members will be more technical in their work doing things like generating SQL queries and dashboard components.

Projects will start on Tuesdays (once we get rolling) with a discussion of the project in class and then the rest of the class available for teams to meet and get organized for the project. The project summary in Azure DevOps will be the main deliverable from this class and will be due on Tuesday at midnight. To complete the project summary you will have to describe the general layout of the dashboard that you will attempt to develop (if you are familiar with web development this is generally called a “wireframe”), and the responsibilities of the team members in completing the project. Responsibilities might include someone to write the SQL, and two people to develop the graphical displays to be included in the dashboard. The project manager might be responsible for putting this all together, and creating the final deliverable. You will have two weeks to complete each project.

## Final Project

We will follow a similar workflow to the individual projects around the final project. We will discuss the final project throughout the course and I will give you lots of ideas of project areas that I think might be interesting. The final project will be a team project. You may use the same team as your earlier projects, but you do not have to. If someone has not contributed their fair share for the previous projects I would suggest not making them a member of the final project. Just like the other projects the final project will start with a project summary in Azure DevOps. This project summary will be the first deliverable for the final project and will include the summary page with a description of your intended project and an agile project plan with several sprints and assignment of the work to be done to individual group members.

I will give you feedback on this in class. After I have given you feedback on your idea you will be given about two weeks to work on your project. During this time class will meet, but I will not lecture. I will be available to answer any questions and provide any assistance I can. Attendance is optional.

There will be two final deliverables on your final project, a twenty minute presentation to the class and a report. I have scheduled three class meetings for the presentations and I will make sign-ups available early in the semester in the discussion section of MyCourses.

This project is your chance to do the creative and useful work that will help you to land a job. I suggest that you use it as an opportunity to shine and do your best work. At most job interviews they ask if you have done any interesting projects as part of your master’s program. This project will give you something to talk about. I think you will enjoy the project.

## Final Exam

There will be one exam in this class. The final exam will be a take home essay exam where I will give you about eight questions to choose from and you will respond to two. I will go over the final exam in class during week ten and you will have about four days to complete the exam.

# Generative AI Use

Generative AI is part of our world now and its use, particularly in technology related projects, is something that can’t be avoided or detected. You may use generative AI to help you write code – but beware that ChatGPT makes errors. I recommend you consider this aspect a first draft that you must check. We will assume that you have mastered coding fundamentals; so, you might consider ChatGPT to be an error-prone partner whose work you need to check!

## Teaching Philosophy

I enjoy teaching classes based on problem based learning. I feel that students learn best when they can try technologies out to see how they translate into solutions for business problems. My goal in structuring my classes is to create an environment where student feel free to try new and innovative ideas and technologies even at the risk of failure.

# Course Materials

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| Required Texts and Resources | Nussbaumer Knaflic, Cole; Storytelling with Data: A Data Visualization Guide for Business Professionals 1st edition: ISBN-13 978-1119002253, Publisher: Wiley, 2015.  Online resources as assigned |

# Course Schedule

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| --- | --- | --- | --- | --- |
| Week | Date | Topic/Activity | Readings/Discussions | Assignments Due |
| 1 | 1/16 | Course introduction |  |  |
| 2 | 1/23 |  |  | 1/26 Azure DevOps Semester Plan Due |
| 3 | 1/30 |  |  |  |
| 4 | 2/6 |  |  | 2/9 E-Commerce/ERP project Due |
| 5 | 2/13 |  |  |  |
| 6 | 2/20 |  |  | 2/23 Crime Project Due |
| 7 | 2/27 |  |  |  |
| 8 | 3/5 |  |  | 3/8 Health/Ecology Project Due |
|  | 3/12 | Spring Break! |  | No Class |
| 9 | 3/19 |  |  |  |
| 10 | 3/26 | 3/26 Review Final Exam  3/28 Project Proposal Due |  | 3/30 Final Exam Due |
| 11 | 4/2 | 4/2 Proposal Feedback in Class | 4/4 Work on Project |  |
| 12 | 4/9 | 4/9 Work on Project | 4/11 Work on Project |  |
| 13 | 4/16 | 4/16 Work on Projects | 4/18 in Class project Presentations |  |
| 14 | 4/23 | 4/23 in Class Project Presentations | 4/25 in Class Project Presentations |  |
|  | 4/30 |  |  | Project Presentation due 4/30 |
|  |  |  |  | 5/10 Grades Due |

Note any breaks, holidays or planned absences (such as for conferences) during the semester.

# Grading/Evaluation

Yo*ur overall evaluation is based on the following components:*

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| --- | --- |
| Labs | 35% |
| Final exam | 20% |
| Azure DevOps Group Project Summary | 15% |
| Group Project Presentation | 10% |
| Group Project Report | 20% |
| Total | 100% |

## Grade Scale

Based on the 100% total listed above, letter grades will be assigned as follows:

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| --- | --- | --- |
| A: 90 points or above | B: 80 points to 89.9 points | C: 70 points to 79.9 points |
| D: 65 points to 69.9 points | F: below 65 points | I: incomplete |

## Late Work

Assignments are due when assigned. Please let me know if an assignment is going to be late.

## Attendance and Participation

There is a positive correlation between attending class and doing well in the class. Don’t fall behind and don’t blow off class.

# Expectations

## From students

I expect you to come to class prepared to learn and interested in the subject of our course. This will be an interesting class, but it will only be fun if you make it that way. Do the outside reading, take notes in class, and don’t expect to learn everything on one review of the material.

## Time commitment

*Since this is a 3-credit hour course, you should plan to spend 3 hours per week in class and an additional 6 to 12 hours on readings, research, discussions, assignments, etc. The rule-of-thumb is 2 to 3 hours per week outside the “classroom” for every credit hour per week in the classroom. If you do the math, it adds to 12–16 hours per week, total.*

## Writing standards

*Written work should adhere to Standard American English. Please proof your papers and e-mail messages before submitting them. I will grade for content, completeness, organization, spelling, grammar, and punctuation, as well as demonstration of knowledge gained in the course and your ability to apply it.*

# Course Policies

## Academic Integrity Statement

*As an institution of higher learning, RIT expects students to behave honestly and ethically at all times, especially when submitting work for evaluation in conjunction with any course or degree requirement. The Department of Information Science and Technology encourages all students to become familiar with the* [*RIT Honor Code*](http://www.rit.edu/studentaffairs/studentconduct/RITHonorCode1.htm) *and with* [*RIT’s Academic Honesty Policy*](http://www.rit.edu/studentaffairs/studentconduct/rr_academicdishonesty.php)*.*

## Statement on Reasonable Accommodations

*RIT is committed to providing reasonable accommodations to students with disabilities. If you would like to request accommodations such as special seating or testing modifications due to a disability, please contact the Disability Services Office. It is located in the Student Alumni Union, Room 1150; the Web site is* [*www.rit.edu/dso*](http://www.rit.edu/dso)*. After you receive accommodation approval, it is imperative that you see me during office hours so that we can work out whatever arrangement is necessary.*

# Other Elements

## Changes to the syllabus

*I have provided this syllabus as guide to our course and have made every attempt to provide an accurate overview of the course. However, as instructor, I reserve the right to modify this document during the semester, if necessary, to ensure that we achieve course learning objectives. You will receive advance notice of any changes to the syllabus through myCourses/email.*

## Concluding statement

Most importantly, please be assured that I want students to learn and to receive the good grades they deserve. So please make an appointment with me should you have undue difficulty with your work in the course.

RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in our university policies located on our [governance website](https://mymail.ad.rit.edu/owa/redir.aspx?SURL=IFwtPZCbizYe0ujYMZ-O6qOXgAM-3X9H3NpYv3qPX02Ax6mylqnSCGgAdAB0AHAAcwA6AC8ALwB3AHcAdwAuAHIAaQB0AC4AZQBkAHUALwBhAGMAYQBkAGUAbQBpAGMAYQBmAGYAYQBpAHIAcwAvAHAAbwBsAGkAYwBpAGUAcwBtAGEAbgB1AGEAbAAvAHAAbwBsAGkAYwBpAGUAcwAvAGcAbwB2AGUAcgBuAGEAbgBjAGUA&URL=https%3a%2f%2fwww.rit.edu%2facademicaffairs%2fpoliciesmanual%2fpolicies%2fgovernance).  RIT’s policies require faculty to share information about incidents of gender based discrimination and harassment with RIT’s Title IX coordinator or deputy coordinators, regardless whether the incidents are stated to them in person or shared by students as part of their coursework.

If you have a concern related to gender-based discrimination and/or harassment and prefer to have a confidential discussion, assistance is available from one of RIT’s confidential resources on campus (listed below).

1.   The Center for Women & Gender: Campus Center Room 1760; 585-475-7464; CARES **(available 24 hours/7 days a week)** Call or text 585-295-3533.

2.   RIT Student Health Center – August Health Center/1st floor; 585-475-2255.

3.  RIT Counseling Center - August Health Center /2nd floor - 2100; 585-475-2261.

4.  The Ombuds Office – Student Auxiliary Union/Room 1114; 585-475-7200 or 585-475-2876.

5.  The Center for Religious Life – Schmitt Interfaith Center/Rm1400; 585-475-2137.

6. NTID Counseling & Academic Advising Services – 2nd Floor Lynden B. Johnson; 585-475-6468 (v), 585-286-4070 (vp).