

COURSE SYLLABUS
IST 644 MANAGING DATA SCIENCE PROJECTS

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Instructor: Jeff Saltz

Office: N/A

Meeting Dates: July 18 – July 21

Phone: N/A

Office Hours: TBD

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Course Description:

Improve data science project outcomes by improving the process a team uses to execute their project. Explore how to integrate data science life cycles / workflows (e.g., CRISP-DM, TDSP) with agile collaboration frameworks (e.g., Kanban, Scrum).

Audience:

Graduate Students in the MS Applied Data Science Program or other students that have an interest in managing data science projects.

Credits:

3

Learning Objectives:

After taking this course, the students will be able to:

1. Leverage agile concepts within a data science project context
2. Describe the key differences between data science projects and software development projects
3. Explain the responsibilities of the different roles within a data science project
4. Identify and minimize the potential ethical implications of a data science project
5. Explain the general data science life cycle, and be able to use several standard workflows frameworks, such as CRISP-DM and TDSP.
6. Articulate the key aspects of coordination frameworks, such as Kanban and Scrum.
7. Select and use the most appropriate team process framework for a specific project

Texts– Required:

There is no text book required for the class. Reading will be assigned within the Learning Management System.

Course Requirements and Expectations:

Enter required activities and projects. Each activity/project should reference at least one learning objective.

4/17/2024

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Grading:

Pework (4 points total)

One point on case (1 point),
Key takeaways from process adoption paper and discussion (1 point),
Four role summaries (1 point),
Key insights from the two videos on data science projects (1 point)

Blog Review (2 blog post reviews, each worth 2 pts - 4 pts total)

Identify blog posts relevant to that module's content. Each blog analysis must be unique across the class. Blogs must be recent (within the last 18 months).

Personal Journal (5 submissions, each worth 2 pts - 10 pts total)

Self-reflect after each day, spend ~30 minutes exploring the web to gain additional insights.
Make an entry of your thoughts (comparing your experiences, noting learning accomplishments, insights and questions), as well as noting identified resources.

Case Study (2 sets of questions, each worth 2 pts – 4 points total)

You will be assigned a specific case to read and analyze. Details on the case will be provided in class. There will be 3 sets of case questions to be answered.

Case Synthesis (8 points)

Details will be provided in class.

Process Scorecard (2 points total)

Information to be provided in class.

Agile CRISP-DM (2 points total)

You will read / evaluate a new process. There will be a set of questions to be answered.

DS Process ChatBot (2 points total)

Information to be provided in class.

Reflection Paper (23 pts)

Details on the paper will be provided in class.

Quizzes (3 quizzes, each worth 2 points – 6 points total)

Designed to measure your understanding of the course content (each module)

Exam (30 pts)

Designed to measure your understanding of the course content.

Class participation (5 pts total)

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Grading Table

Highest	Lowest	Letter	Expectation
100.00 %	93.00 %	A	Your work is outstanding
92.99 %	90.00 %	A-	
89.99 %	87.00 %	B+	Your work is about what would be expected of a serious student
86.99 %	83.00 %	B	
82.99 %	80.00 %	B-	
79.99 %	77.00 %	C+	Your work falls below what is expected but is adequate
76.99 %	73.00 %	C	
72.99 %	70.00 %	C-	
69.99%	0.00 %	F	Your work is out of the picture

University Attendance Policy:

Attendance in classes is expected in all courses at Syracuse University. Students are expected to arrive on campus in time to attend the first meeting of all classes for which they are registered. Students who do not attend classes starting with the first scheduled meeting may be academically withdrawn as not making progress toward degree by failure to attend. Instructors set course-specific policies for absences from scheduled class meetings in their syllabi.

It is a federal requirement that students who do not attend, or cease to attend, a class to be reported at the time of determination by the faculty. Faculty should use “ESPR” and “MSPR” in Orange Success to alert the Office of the Registrar and the Office of Financial Aid. A grade of NA is posted to any student for whom the Never Attended flag is raised in Orange SUccess. More information regarding Orange SUccess can be found [here](http://orangesuccess.syr.edu/getting-started-2/), at:

<http://orangesuccess.syr.edu/getting-started-2/>

Students should also review the University’s religious observance policy and make the required arrangements at the beginning of each semester.

Syracuse University Policies:

Syracuse University has a variety of other policies designed to guarantee that students live and study in a community respectful of their needs and those of fellow students. Some of the most important of these concerns:

Diversity and Disability (ensuring that students are aware of their rights and responsibilities in a diverse, inclusive, accessible, bias-free campus community) can be found [here](https://www.syracuse.edu/life/accessibilitydiversity/), at <https://www.syracuse.edu/life/accessibilitydiversity/>

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Religious Observances Notification and Policy (steps to follow to request accommodations for the observance of religious holidays) can be found [here](http://supolicies.syr.edu/studs/religious_observance.htm), at: http://supolicies.syr.edu/studs/religious_observance.htm

Orange Success (tools to access a variety of SU resources, including ways to communicate with advisors and faculty) can be found [here](http://orangesuccess.syr.edu/getting-started-2) at: <http://orangesuccess.syr.edu/getting-started-2>

Disability-Related Accommodations

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to meet with me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the Office of Disability Services (ODS) in this process.

If you would like to discuss disability-accommodations or register with ODS, please visit their [website](http://disabilityservices.syr.edu/) at <http://disabilityservices.syr.edu/> Please call (315) 443-4498 or email disabilityservices@syr.edu for more detailed information.

ODS is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible to begin this process.

Academic Integrity Policy

Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the [University's academic integrity](#) expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on [MySlice](#).

Educational Use of Student Work

Student work prepared for University courses in any media may be used for educational purposes, if the course syllabus makes clear that such use may occur. You grant permission to have your work used in this manner by registering for, and by continuing to be enrolled in, courses where such use of student work is announced in the course syllabus.

Discrimination or Harassment

The University does not discriminate and prohibits harassment or discrimination related to any protected category including creed, ethnicity, citizenship, sexual orientation, national origin, sex, gender, pregnancy, disability, marital status, age, race, color, veteran status, military status, religion, sexual orientation, domestic violence status, genetic information, gender identity, gender expression or perceived gender.

Any complaint of discrimination or harassment related to any of these protected bases should be reported to Sheila Johnson-Willis, the University's Chief Equal Opportunity & Title IX Officer. She is responsible for coordinating compliance efforts under various laws including Titles VI, VII, IX and Section 504 of the Rehabilitation Act. She can be contacted at Equal Opportunity, Inclusion, and Resolution Services, 005 Steele Hall, Syracuse University, Syracuse, NY 13244-1120; by email: titleix@syr.edu; or by telephone: 315-443-0211.

I will seek to keep information you share with me private to the greatest extent possible, but, as a professor, I have mandatory reporting responsibilities to share information regarding sexual misconduct, harassment, and crimes I learn about, to help make our campus a safer place for all.

Course Feedback:

At the end of the term, the iSchool will ask you to share course feedback through [EvaluationKIT \[https://coursefeedback.syr.edu\]](https://coursefeedback.syr.edu). Log in to EvaluationKIT using your NetID and password. Please take the time to share your feedback about this course and your experience in it; all ratings and comments are completely anonymous. The iSchool carefully reviews your feedback. Our instructors use this feedback to fine tune course delivery and instruction; our professors of record use this feedback to fine tune course content and assignments. All feedback is factored into iSchool decisions about course, program and instructor development.

Learning Management System

This course involves the use of Syracuse University's **Blackboard** system as an online tool. The environment is composed of a number of elements that will help you be successful in both your current coursework and your lifelong learning opportunities. To access [Blackboard](http://blackboard.syr.edu), [\[http://blackboard.syr.edu\]](http://blackboard.syr.edu) use your Syracuse University NetID & Password. This specific course will appear in your course list.

To search for answers to your Blackboard questions, visit the [Answers self-help knowledge base \[https://answers.syr.edu/display/blackboard01/Blackboard\]](https://answers.syr.edu/display/blackboard01/Blackboard). If you have problems logging in or

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need assistance with Blackboard, contact the ITS Service Center at: help@syr.edu or 315.443.2677. The Syracuse University Blackboard support team will assist you.

Course Schedule *subject to change*

Key Concepts	When Covered	Topics	Assignments*
Introduction and Overview	Pework (due before class starts)	<ul style="list-style-type: none"> • Introductions • Process adoption • Leading Data Science teams & challenges • Reviewing what is Data Science • Roles (non-technical) 	<ul style="list-style-type: none"> • Watch videos & Answer questions • Read Adoption paper • Read Case • Journal #1
Agility & Data Science	Thursday morning	<ul style="list-style-type: none"> • Welcome / introductions / Overview • The Need for a process • Agile data science (benefits, achieving agility)? • Types of Frameworks • Case Overview & case questions 1 	<ul style="list-style-type: none"> • Case 1 questions • ChatGPT exploration
Types of Frameworks	Thursday Afternoon	<ul style="list-style-type: none"> • Case Questions 1 - Discussion • CRISP-DM (overview) • Others (OSEMN, Harvard, Domino, Uber, TDSP) 	<ul style="list-style-type: none"> • Workflow Blog • Journal entry 2 • Read CRISP-DM doc (optional)
Data Science Workflows	Friday Morning	<ul style="list-style-type: none"> • Quiz • Reviewing the workflows • Blog 1: Presentation & Discussion • Integrating ethics into the process (e.g., bias, model transparency, fairness) 	<ul style="list-style-type: none"> •
Coordination frameworks	Friday afternoon	<ul style="list-style-type: none"> • Lean & Kanban • Scrum (Principles, Sprints, Stories, ...) • Scrum and Data Science 	<ul style="list-style-type: none"> • Journal #3 • Case 2 questions • Coordination Blog • Read Scrum Guide (optional)
Data Driven Scrum	Saturday Morning	<ul style="list-style-type: none"> • Quiz • Data Driven Scrum • Agile CRISP-DM 	<ul style="list-style-type: none"> •
Prioritization and Product Ownership	Saturday Afternoon	<ul style="list-style-type: none"> • Scaling agile & data science teams • Common Issues • Work on Case Synthesis 	<ul style="list-style-type: none"> • Case Questions 3 • Case synthesis #1 • Journal 4
Working across teams	Sunday Morning	<ul style="list-style-type: none"> • Quiz • Product Owner & Product Management • Prioritization • Work on Case Synthesis 	
Exam and reflection paper	Sunday afternoon	<ul style="list-style-type: none"> • Exam • Work on reflection paper 	
	1 week later	<ul style="list-style-type: none"> • Finish case synthesis • Work on reflection paper 	<ul style="list-style-type: none"> • Journal 5 • Case synthesis #1 & 2 • Reflection paper

*Due the following session (e.g., if a morning module, due after lunch, and if an afternoon module, due the following morning)