Graduate Course Syllabus

DAT 690: Capstone in Data Analytics

Center: Online

Course Prerequisites

DAT 650; completion of 30 credits

Course Description

This capstone course is the culminating experience for the M.S. in Data Analytics program. The aim of the capstone is to assess learners' ability to synthesize and integrate the knowledge and skills they have developed throughout their coursework, rather than introducing new concepts. This course is structured to support learner success in fulfilling program requirements.

Course Outcomes

- Conduct thorough needs assessments using statistical, analytical, and applied research techniques and consult organizational stakeholders on business requirements to offer logical and effective recommendations for data analytics initiatives.
- Design and implement advanced modeling techniques, such as predictive modeling, risk-assessment and optimization, and analytics algorithms using structured and unstructured data to provide new solutions to complex organizational issues.
- Communicate with professionalism, accuracy, and transparency using interactive and dynamic visualization tools to translate technical information and offer effective solutions to organizational stakeholders.
- Apply effective collaborative and essential project management strategies to facilitate and improve the work of diverse and multi-functional teams, streamline processes, and lead projects to successful outputs.
- Protect the integrity and privacy of data, organizations, and consumers through advanced technology solutions and ethical and legal practices in all aspects of the profession.
- Employ applied, contextual knowledge of an organization’s industry to target new data opportunities that improve an organization’s competitiveness, effectiveness, and longevity.
- Adapt and implement innovative methods, models, and technologies that allow for adaptability to new and unexpected changes and improve the agility of data analytics projects.
- Position data analytics as a competitive advantage to organizations by accurately communicating the cost and benefits of data analytics projects and technologies as well as the long-term benefits of data-driven decision making.

Software Requirement

In this course, you will use the Virtual Lab to access the following software:

- JMP Pro
- RStudio
- PowerBI
- Microsoft Excel

Please create accounts when prompted to do so, if you do not already have them.

Diversity, Equity, and Inclusion

As indicated in our core values, SNHU is committed to "embrace diversity where we encourage and respect diverse identities, ideas, and perspectives by honoring difference, amplifying belonging, engaging civilly, and breaking down barriers to bring our mission to life."

This may or will be reflected in SNHU's curriculum as we embrace and practice diversity, equity, and inclusion (DEI) to provide the most transformative experience for our students, faculty, and staff. Because topics pertaining to DEI can be sensitive, please remember that embodying and practicing diversity, equity, and inclusion is one of our core values that you will encounter throughout the academic experience. In higher education, we are expected to think and engage critically. Use a growth mindset to embrace the diverse readings, course assignments, and experiences of your peers and faculty.

For more information about DEI at SNHU, please visit our website at the Office of Diversity and Inclusion.

Instructor Availability and Response Time

Your class interaction with the instructor and your classmates will take place on a regular, ongoing basis. Your instructor will be actively engaged within the course throughout the week. You will normally communicate with your instructor in the weekly discussions or the General Questions discussion topic so that your questions and the instructor's answers benefit the entire class. You should feel free, however, to communicate with your instructor via SNHU email at any time, particularly when you want to discuss something of a personal or sensitive nature. Your instructor will generally provide a response within 24 hours. Instructors will post grades and feedback (as applicable) within seven days of an assignment's due date, or within seven days of a late submission.

Grade Distribution

Assignment Category	Number of Graded Items	Point Value per Item	Total Points
Getting Started	1	5	5
Discussion	5	9	45
Journal	3	10	30
Peer Review	1	10	10
Programming Revision	1	10	10
Production Turnover Report	1	10	10
Flowchart and Notes	3	10	30
Milestone One: Project Summary and Analytic Plan	1	15	15
Milestone Two: Data Understanding and Data Preparation	1	20	20
Milestone Three: Modeling and Evaluation	1	25	25
Capstone Submission	1	800	800
Component One: Data Analytic Presentation			
Component Two: Personal and Professional Reflection			
			Total Course Points: 1,000

This course may also contain practice activities. The purpose of these non-graded activities is to assist you in mastering the learning outcomes in the graded activity items listed above.

University Grading System: Graduate

Grade	Numerical Equivalent	Points
A	93–100	4.00
A-	90–92	3.67
B+	87–89	3.33
B	83–86	3.00
B-	80–82	2.67
C+	77–79	2.33
C	73–76	2.00
F	0–72	0.00
I	Incomplete	
IF	Incomplete/Failure *	
W	Withdrawn	

* Please refer to the policy page for information on the incomplete grade process.

Grading Guides

Specific activity directions, grading guides, posting requirements, and additional deadlines can be found in the Assignment Guidelines and Rubrics section of the course.

Weekly Assignment Schedule

All reading and assignment information can be found within each module of the course. Assignments and discussion posts during the first week of each term are due by 11:59 p.m. Eastern Time. Assignments and discussion posts for the remainder of the term are due by 11:59 p.m. of the student's local time zone.

In addition to the textbook readings that are listed, there may be additional required resources within each module.

Module	Topics and Assignments
1	Introduction and Review 1-1 Discussion: Getting Started 1-2 Discussion: Data Analytics Reflection 1-3 Review Final Project Document (Non-graded) 1-4 Journal: Project Planning With Your Manager 1-5 Access the Virtual Lab (Non-graded)
2	Revision of Business Understanding, Data Understanding, and Data Preparation 2-1 Milestone One: Project Summary and Analytic Plan 2-2 Flowchart and Notes One 2-3 Data Cleaning Review (Non-graded) 2-4 Reminder: Begin Milestone Two
3	Discussion of Analytic Plan 3-1 Milestone Two: Data Understanding and Data Preparation 3-2 Discussion: Analytic Plan Peer Review
4	Data Preparation Phase: Understanding and Documenting the Process 4-1 Model Building Review (Non-graded) 4-2 Flowchart and Notes Two
5	Overview of the Analytic Process 5-1 Milestone Three: Modeling and Evaluation 5-2 Discussion: Team-Based Analytics
6	Modeling Phase: Finalizing Your Model 6-1 Data Analytic Plan Revision (Non-graded) 6-2 Journal: Status Report
7	Evaluation Phase: Testing Your Model 7-1 Flowchart and Notes Three 7-2 Discussion: Testing Your Model 7-3 Journal: Communicating Data

Module	Topics and Assignments
8	Evaluation Phase: Preparing for Deployment 8-1 Programming Revision: Strengthening Your Code 8-2 Production Turnover Report 8-3 Professional Presentation Review (Non-graded)
9	Wrapping Up 9-1 Capstone: Data Analytic Plan Presentation and Personal and Professional Reflection
10	Your Future in Data Analytics 10-1 Discussion: Career Tips 10-2 Discussion: Pitching It

Course Participation

Course participation is required within the first week of the term for all online courses. *Participation* in this context is defined as completing one graded assignment during the first week of the course. Otherwise, students will be administratively removed for nonparticipation. Students who do not participate during the first week may forfeit their rights to be reinstated into the course. Students who stop attending a course after the first week and who do not officially withdraw will receive a grade calculated based on all submitted and missed graded assignments for the course. Missed assignments will earn a grade of zero. See the course withdrawal policy and the full attendance policy for further information.

Late Assignments

Students who need extra time may submit assignments (excluding discussion board postings) up to one week after the assignment due date. Discussion board submissions will not be accepted for credit after the deadline except in extenuating circumstances.

- A penalty of 10 percent of the total value of the assignment will be applied to the grade achieved on the late assignment regardless of the day of the week on which the work is submitted.
- Students who submit assignments more than one week late will receive a grade of zero on the assignment unless they have made prior arrangements with the instructor.

Students must submit all assignments no later than 11:59 p.m. (in their own time zone) on the last day of the term. No assignments are accepted after the last day of the term unless an incomplete has been submitted. See the incomplete grades policy.

There may be times an instructor makes an exception to the late assignment policy. Instructors may accept late work, including discussion board posts, with or without prior arrangement.

- Exceptions to the late policy on these grounds are left to the instructor's discretion, including whether the late penalty is applied or waived. Students should not assume that they will be allowed to submit assignments after the due dates.
- If an instructor finds that they are unable to determine whether an exception to the late policy would be appropriate without documentation, the collection and review of student documentation should be

handled through the Dispute Resolution team in order to protect the student's privacy. In these cases, students should file a Student Concern Dispute form to have the circumstances reviewed.

If a student is experiencing (or knows they will experience) a circumstance, including pregnancy, that is protected under the Americans with Disabilities Act or Title IX, they are encouraged to contact the Online Accessibility Center (OAC) as soon as possible to explore what academic accommodations might be offered. Instructors must honor all deadlines established through the OAC.

Student Handbook

Review the student handbook.

ADA/504 Compliance Statement

Southern New Hampshire University (SNHU) is dedicated to providing equal access to individuals with disabilities in accordance with Section 504 of the Rehabilitation Act of 1973 and with Title III of the Americans with Disabilities Act (ADA) of 1990, as amended by the Americans with Disabilities Act Amendments Act (ADAAA) of 2008.

SNHU prohibits unlawful discrimination on the basis of disability and takes action to prevent such discrimination by providing reasonable accommodations to eligible individuals with disabilities. The university has adopted the ADA/504 Grievances Policy (version 1.2 effective October 16, 2017), providing for prompt and equitable resolution of complaints regarding any action prohibited by Section 504 or the ADA.

For further information on accessibility support and services, visit the Disability and Accessibility Services webpage.

Academic Integrity Policy

Southern New Hampshire University requires all students to adhere to high standards of integrity in their academic work. Activities such as plagiarism and cheating are not condoned by the university. Review the full academic integrity policy.

Copyright Policy

Southern New Hampshire University abides by the provisions of United States Copyright Act (Title 17 of the United States Code). Any person who infringes the copyright law is liable. Review the full copyright policy.

Withdrawal Policy

Review the full withdrawal policy.

Southern New Hampshire University Policies

More information about SNHU policies can be found on the policy page.