GEN BUS 780 – Cloud Technology for Business Analytics

Course Information

Title	**Cloud Technology for Business Analytics**
Number	GEN BUS 780-010, -011
Semester	Fall 2022 (10/10-12/14)
Meeting Time & Location	Section 010 – Thu – 1:00-2:15PM – Room 2520 Section 011 – Fri – 2:30-3:45PM – Room 1295
Instructional Modality	In Person
Course Description	Provides an overview of cloud services that support business analytics. Load and analyze data, build and deploy machine learning models, and develop data pipelines through hands-on, in-class activities working in cloud environments.
Credit Hours	1 Credit – The credit standard for this course is met by an expectation of a total of 45 hours of student engagement with the course learning activities, which include regularly scheduled instructor-student meeting times, reading, writing, problem sets, and other student work as described in the syllabus.
Regular and Substantive Student-Instructor Interaction	This course meets the regular and substantive student-instructor interation requirement as defined by the US Department of Education. In regards to substantive interaction, the instructor engages students through direct instruction, providing feedback on student work, and providing information about course content. In regards to regular interaction, the instructor provides predictable and scheduled interaction with students consistent with the course length.
Requisites	Graduate/Professional Standing, or Member of Graduate Business Exchange program
Designation & Attributes	Graduate Attribute

Instructor Information

Instructor Name & E-mail	Cody Baldwin, cody.baldwin@wisc.edu
Instructor Office Hours	Friday, 12:30-1:45PM, MSBA Center (4th Floor)

Course Learning Outcomes

- Explain, at foundational level, the cloud landscape for business analytics – i.e. vendors, services, and costs.
- Demonstrate how to load and connect to data in the cloud for a variety of analytics.
- Setup and manage a cloud data warehouse.
- Build and deploy machine learning models in the cloud.
- Develop and test a data pipeline in the cloud.
- Analyze big data in a cloud environment.

Course Schedule

The following topics are tentatively planned during the following weeks. (However, this is subject to change.)

Week	Day of Class	Topics	Assignment(s) Due
10/09 - 10/15	10/13 (10), 10/14 (11)	Surveying the Cloud Landscape	Class Prep Activity, Class Problem
10/16 - 10/22	10/20 (10), 10/21 (11)	Loading & Connecting to Cloud Data	Class Prep Activity, Class Problem
10/23 - 10/29	10/27 (10), 10/28 (11)	Utilizing Cloud Data Warehouses (week 1)	Class Prep Activity, Class Problem
10/30 - 11/05	11/03 (10), 11/04 (11)	Utilizing Cloud Data Warehouses (week 2)	Class Prep Activity, Class Problem
11/06 - 11/12	11/10 (10), 11/11 (11)	Building & Deploying Models in the Cloud	Class Prep Activity, Class Problem
11/13 - 11/19	11/17 (10), 11/18 (11)	Developing Cloud Data Pipelines (week 1)	Class Prep Activity, Class Problem
11/20 - 11/26	**No Class**	Developing Cloud Data Pipelines (week 2)	Class Prep Activity
11/27 - 12/03	12/01 (10), 12/02 (11)	Analyzing Big Data in the Cloud	Class Prep Activity, Class Problem
12/04 - 12/10	12/08 (10), 12/09 (11)	Collaborating in the Cloud	Class Prep Activity, Class Problem
12/11 - 12/17	**No Class**	*(Work on Final Project)*	**FINAL PROJECT** (Due 12/14)

Grading

Grading Scale:

Grade	Range *
A	$x \geq 93\%$
AB	$89\% \leq x < 93\%$
B	$80\% \leq x < 89\%$
BC	$75\% \leq x < 80\%$
C	$65\% \leq x < 75\%$
D	$55\% \leq x < 65\%$
F	$00\% \leq x < 55\%$

Grading Criteria:

Assignment	# of Assignments	% of Grade
Class Prep Activities	9 (each worth 5%)	45%
Class Problems	8 (each worth 5%)	40%
Final Project	1	15%

* The final grades will not be curved.

Assignments & Projects

Class Preparation Activities

These are short activities or quizzes in *Canvas* that will be due prior to each class meeting – typically the evening before. They help prepare students for the material that will be covered in class. (It helps make our class sessions more productive.) In preparation for these activities or quizzes, you will need to read and/or watch the material provided in each assignment's description.

Class Problems:

Throughout the semester, we will work on practice problems in class. (You learn by doing!) You will be expected to submit your work at the end of class to *Canvas*.

Final Project:

There will be **a final project** during the semester to allow you to review and reflect on the material covered in the class. Detailed instructions will be provided no later than two weeks prior to the due date. The project will be submitted within *Canvas*.

Required Textbook

No textbook is required for this course. Required articles and videos will be uploaded or linked to within Canvas. They will not cost anything to view.

Representative List of Readings

Although there is no required textbook, readings will be provided from various cloud technology books and documents, such as those listed below, but they will be provided at no cost to students.

- "Cloud Data Management – 4 Stages for Informed Companies" (Link)
- "Amazon Web Services (AWS) Well-Architected Framework – Analytics Lens" (Link)

Required Software

The software tools listed below will be used during the semester. (Others may be added during the semester.) However, each of them are free or offer free versions. You should NOT download them until instructed to do so during the semester. (Some of the free trials need to be activated for you by the instructor.)

- Amazon Web Services (includes S3, EC2, EMR, etc.) – for cloud compute and storage
- Snowflake – for cloud data warehousing
- Fivetran – for extraction and loading into cloud data warehouses
- Data Build Tool (DBT) – for transformations in cloud data warehouses
- Docker – for "containerizing" and deploying machine learning models in the cloud
- Tableau – for data visualization (in class, we will build dashboards using data in the cloud)
- GitHub – for code collaboration and versioning in the cloud

Additionally, campus provides students with technology guidelines and recommendations for instruction. Students should consult these resources prior to the start of the semester.

Late Work Policy

In order to be fair to all students, the only exception for late work would be with a doctor's note. In those cases, the completed work and doctor's note must be submitted within two days of the original due date.

Campus Spaces for Virtual Learning & Testing

Dedicated on-campus spaces with high-speed internet are available for students to reserve for any exam/quiz taken during the semester. Computers can also be requested.

Campus Resources to Help You Be Successful

As you complete the course, the following campus resources may provide helpful: University Health Services, Office of the Registrar, Office of Student Financial Aid, and Dean of Students Office

Privacy of Student Information & Digital Tools: Teaching & Learning Analytics & Proctoring Statement

The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully reviews and vets all campus-supported digital tools used to support teaching and learning, to help support success through learning analytics, and to enable proctoring capabilities. UW-Madison takes necessary steps to ensure that the providers of such tools prioritize proper handling of sensitive data in alignment with FERPA, industry standards and best practices.

Under the Family Educational Rights and Privacy Act (FERPA which protects the privacy of student education records), student consent is not required for the university to share with school officials those student education records necessary for carrying out those university functions in which they have legitimate educationl interest. 34 CFR 99.31(a)(1)(i)(B). FERPA specifically allows universities to designate vendors such as digital tool providers as school officials, and accordingly to share with them personally identifiable information from student education records if they perform appropriate services for the university and are subject to all applicable requirements governing the use, disclosure and protection of student data.

Privacy of Student Records & the Use of Audio Recorded Lectures

See information about privacy of student records and the usage of audio-recorded lectures.

Lecture materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Course Evaluations

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your confidential feedback is important to me. I strongly encourage you to participate in the course evaluation.

UW-Madison now uses an online course evaluation survey tool, AEFIS. In most instances, you will receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously.

Students' Rules, Rights & Responsibilities

During the global COVID-19 pandemic, we must prioritize our collective health and safety to keep ourselves, our campus, and our community safe. As a university community, we must work together to prevent the spread of the virus and to promote the collective health and welfare of our campus and surrounding community.

UW-Madison **Badger Pledge**

Diversity & Inclusion Statement

Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.

Academic Integrity Statement

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion.

Accommodations for Students with Disabilities Statement

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (McBurney Disability Resource Center)

Academic Calendar & Religious Observances

See: https://secfac.wisc.edu/academic-calendar/#religious-observances