

IS 360/460: Enterprise Cloud Computing

Winter Quarter 2022-23

Course Information

Meeting time: Thursday 5:45PM - 9:00PM

Location: Lewis Center, RM 1110

Homepage: <https://d2l.depaul.edu>

Instructor Information

Instructor: Paul Duszak

Email: pduszak@depaul.edu

Office Location: N/A

Office Hours: Zoom - Tuesday 5:30-8:00pm, schedule an appointment via Bluestar

Course Description

Cloud concepts, architecture, and service management, with particular emphasis upon identifying and analyzing potential business applications of cloud computing. Students will conduct feasibility studies, detailing the advantages and disadvantages of implementing a cloud computing platform for specific applications, with particular emphasis upon financial considerations, business benefits, and security risks. Students will develop the ability to evaluate alternatives and effectively argue in favor of their choices within the cloud computing knowledge domain. They will be able to define, apply, and defend the need for standards and best practices. Students will work within a project team following the principles of project management to design, build, and implement cloud applications.

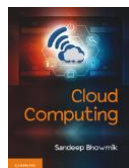
Course Grading

- Assignments – 50%
- D2L Quizzes – 15%
- Midterm / Final Exam – 35%

Course Drop Dates

Please reference: <https://academics.depaul.edu/calendar/Pages/default.aspx>

Textbook



Cloud Computing - Sandeep Bhowmik ([Link](#))

This guide follows a structured approach explaining cloud techniques, models and platforms. Popular cloud services such as Amazon, Google and Microsoft Azure are explained in the text. The security risks and challenges of cloud computing are discussed in detail with useful examples. Emerging trends including mobile cloud computing and internet of things are discussed in the book for the benefit of the readers.

Supplementary material will be provided for concepts not covered in the text.



Learning Outcomes

While this course will provide you with a foundational understanding of cloud computing concepts, students are not expected to become familiar with the technical details of implementing and deploying cloud services. The focus of this course is on identifying and analyzing potential business applications of cloud computing, and on developing the ability to evaluate the advantages and disadvantages of a cloud computing platform.

Upon completion of the course, the students will be able to:

- Understand the key concepts, architecture, and services of cloud computing, and be able to explain how they can be used to support business applications.
- Conduct feasibility studies to evaluate the potential advantages and disadvantages of implementing a cloud computing platform for specific business applications
- Develop the ability to compare and evaluate different cloud computing options and make informed decisions based on data and analysis.
- Understand and be able to apply standards and best practices related to cloud computing, and be able to defend the need for these standards in various contexts.
- Work effectively within a project team to design, build, and implement cloud applications, following principles of project management.
- Understand the importance of security and privacy considerations when working with cloud computing platforms and applications.

Tentative Course Schedule

The below is a rough outline and is likely to change.

Week 1: Introduction to Cloud Computing

- Introduction to cloud computing concepts and technologies
- Cloud service models (IaaS, PaaS, SaaS) and deployment models (public, private, hybrid)
- Benefits and challenges of cloud computing

Week 2: Cloud Computing Architecture and Infrastructure

- Overview of cloud architecture and infrastructure
- Virtualization and the use of hypervisors in the cloud
- Networking in the cloud (e.g. VLANs, VPNs, load balancing)

Week 3: Cloud Storage and Data Management

- Overview of cloud storage options (e.g. object storage, block storage, file storage)
- Data management in the cloud (e.g. replication, backup and recovery, data security)

Week 4: Cloud Computing Security

- Overview of security challenges in the cloud
- Security controls and best practices for cloud environments
- Cloud compliance and regulatory issues

Week 5: Midterm



Tenative Course Schedule (continued)

Week 6: Cloud Deployment and Management

- Overview of cloud deployment and management tools and platforms (e.g. AWS, Azure, Google Cloud)
- Deploying and managing applications in the cloud

Week 7: Cloud-Native Applications

- Introduction to cloud-native concepts and principles
- Containerization and orchestration tools (e.g. Docker, Kubernetes)

Week 8: Cloud Big Data, Analytics, and AI

- Introduction to big data and analytics in the cloud
- Case studies and examples of big data analytics in the cloud
- Stable Diffusion and AI in the cloud
- Case studies and examples of AI and machine learning in the cloud

Week 9: Cloud Case Studies and Future Trends

- Case studies of successful and unsuccessful cloud implementations in various industries
- Emerging trends and technologies in cloud computing (e.g. edge computing, serverless computing)

Week 10: Final Exam

Course Policies

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.



Course Policies (continued)

Respect for Diversity & Inclusion at DePaul University as aligned with our Vincentian Values

At DePaul, our mission calls us to explore “what must be done” in order to respect the inherent dignity and identity of each human person. We value diversity because it is part of our history, our traditions and our future. We see diversity as an asset and a strength that adds to the richness of classroom learning. In my course, I strive to include diverse authors, perspectives and teaching pedagogies. I also encourage open dialogue and spaces for students to express their unique identities and perspectives. I am open to having difficult conversations and I will strive to create an inclusive classroom that values all perspectives. If at any time, the classroom experience does not live up to this expectation, please feel free to contact me via email or during office hours.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student’s identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Please see <https://resources.depaul.edu/teaching-commons/teaching/Pages/online-teaching-evaluations.aspx> for additional information.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. All students are expected to abide by the University's Academic Integrity Policy which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is considered to be providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity.

More information can be found at: <https://resources.depaul.edu/teaching-commons/teaching/academic-integrity/Pages/default.aspx>.

Posting work on online sites, such as Hero

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Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at: <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>



Course Policies (continued)

Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at:

<http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

Preferred Name & Gender Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter so that I may make appropriate changes to my records. Please also note that students may choose to identify within the University community with a preferred first name that differs from their legal name and may also update their gender. The preferred first name will appear in University related systems and documents except where the use of the legal name is necessitated or required by University business or legal need. For more information and instructions on how to do so, please see the Student Preferred Name and Gender Policy at

<http://policies.depaul.edu/policy/policy.aspx?pid=332>

Students with Disabilities

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

- Loop Campus (312) 362-8002
- Lincoln Park Campus (773) 325-1677
- Email: csd@depaul.edu

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gregory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible.

Please see <https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx> for Services and Contact Information.

Online office hours (online sections only)

Faculty should be accessible to students using Zoom, Skype or other similar platforms for the duration of the office hours. Faculty must be accessible on the designated platform for the duration of the office hours.

