



**ISM 6930**  
**Cloud Solution Architectures**  
School of Information Systems and Management

**COURSE SYLLABUS**  
Last Updated: 1/4/2023

**Instructor:** Dr. Rouzbeh Behnia

**Office Location:** Sarasota Campus – C266

**Office Hours:** Online (MS Teams) and in-person (with appointment at CIS2055) – M 1pm-3pm

**Phone Number:** 941-359-4605

**Email:** behnia@usf.edu

**Semester:** Spring 2023

**Class Meeting Days:** Asynchronous Online

**Class Meeting Time:** Asynchronous Online

**Delivery Method:** Asynchronous Online

**Class Meeting Location:** Online, Off-campus

**COURSE PREREQUISITES:** ISM 4220

**COURSE DESCRIPTION:**

Introduction to cloud architecture fundamentals, principles and practices and their application in cloud adoption and implementation. Exposure to latest thinking on cloud native architectures, cloud technology services, cloud performance, and cloud security.

**COURSE OBJECTIVES:**

The objective of this course is to introduce students to cloud architecture fundamentals, principles and practices. Students learn to undertake organizational decisions related to cloud adoption and implementation. Students are to be exposed to latest thinking on cloud native architectures, cloud services, performance requirements, infrastructure, and security. Students learn to architect effective and organizationally aligned cloud computing solutions by addressing cloud computing fundamentals, cloud architecture considerations, cloud technology service selection, and cloud computing security controls.

**REQUIRED TEXTBOOK:**

L., J. K., & Goessling, S. (2018). *Architecting cloud computing solutions: Build cloud strategies that align technology and economics while effectively managing risk*. Packt Publishing, Limited. ISBN: 9781788472425, [The textbook is available online at the USF library.](#)

Winkler, V. J. (2011). *Securing the Cloud: Cloud computer Security techniques and tactics*. Elsevier. ISBN-13: 978-1597495929

[The textbook is available online at the USF library.](#)

Christoph Fehling, Frank Leymann, Ralph Retter, Walter Schupeck, and Peter Arbitter. *Cloud Computing Patterns*. Springer, 2014. ISBN-13: 978-3709115671

[The textbook is available online at the USF library.](#)

**SUPPLEMENTAL READINGS:**

- External websites and other assigned readings and weekly instructor notes, videos and/or audio files

**COURSE TOPICS:** This course will cover the following content areas:

- Introduction to cloud computing
- Fundamentals of cloud: IaaS, PaaS, SaaS and AaaS
- Cloud computing architectures – baseline models
- Cloud solution reference architectures
- Cloud architecture operational requirements
- Cloud-native architecture - the principle of architecting for the cloud
- Cloud governance and change management
- Security and technical architecture requirements
- Legal, regulatory and compliance requirements
- Cloud virtualization
- Cloud-based services & clients

**Student learning outcomes:**

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

- Explain cloud computing principles & concepts
- Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.
- Recognize cloud computing standards
- Summarize cloud computing implementation strategies
- Design cloud architectures that support specific business cases
- Design, modify, and aggregate baseline cloud architectures
- Choose the appropriate technologies, algorithms, and approaches for the related issues

**COURSE POLICIES: Technology and Media**

**Canvas Technical Support**

If you have technical difficulties in Canvas, you can find access to the Canvas guides and video resources in the “Canvas Help” page on the homepage of your Canvas course. You can also contact the help desk by calling 813-974-1222 in Tampa or emailing [help@usf.edu](mailto:help@usf.edu).

[IT website for the Tampa campus.](#)

[IT website for the St. Pete campus.](#)

[IT website for the Sarasota-Manatee campus.](#)

**COURSE LOGISTICS:**

1. Please only use your USF email to email me and use “ISM6930” in the subject line of your email (no spaces) to help me filter emails.
2. Deliverables are due by the end of day on the due date (11:59 pm).

**Covid Policy (Fall 2022)**

Students should not attend class if they are ill, particularly if they have fever and/or gastrointestinal symptoms and/or respiratory symptoms such as a sneezing, runny nose, sore throat or coughing. Students experiencing any of these symptoms should contact Student Health Services immediately (813-974-2331) for appropriate medical guidance and to obtain a verification of care letter. To be approved for missed classes, late assignments or missed examinations a verification of care letter must be presented by the student to the faculty member upon return to class.

## First Day Attendance Policy

Please complete the first day attendance self-introduction discussion no later than the first Thursday of class by 11:59Pm. Students who don't complete the first day activity run the risk of being dropped from the course.

## GRADING POLICIES

- **Makeup Exam Policy:** Make up opportunities will only be provided with a valid reason, for instance, medical related emergencies.
- **Late Submission Policy:** All assigned work is expected to be turned in on time, by 11:59 p.m. of the due date. Late submissions will only be accepted with a valid reason. It is okay for students to work ahead and complete all assignments, labs, and tests if they desire, but no makeups or extra credit will be offered.
- **Exam Retention Policy:** After exams are graded, the instructor will review the examination with the class and collect all exams. The exams will be retained for one semester following the current one, and then they will be destroyed.

## GRADING SCALE

USF policy requires that all students receive a graded assignment or examination prior to the semester's drop/withdraw date (please refer to important dates on page 1 of this syllabus). Student performance for this course will be evaluated based on tests, assignments, and quizzes, as detailed below. Below is a summary for the determination of the final grade.

A+ = 97-100; A=94-96; A- =90-93; B+ = 87-89; B=84-86; B- = 80-83;  
C+=77-79; C = 74-76; C - = 70-73; D = 60- 69; F = 59 or below

## GRADE CATEGORIES AND WEIGHTS

| Deliverables  | Unit weight | Total weight |
|---|-------------|--------------|
| Participation - Discussions (5pts ea.)<br>Lecture knowledge checks (complete or incomplete) | 6%          | 6%           |
| Assignments (2) (100 pts ea.)   | 13%         | 26%          |
| Quizzes (11) (2pts ea.)   | 2%          | 22%          |
| Test 1 (100pts)   | 15%         | 15%          |
| Test 2 (100pts)   | 15%         | 15%          |
| Project (100pts)  | 16%         | 16%          |
| Total   |             | 100%         |

## Instructor Feedback Policy & Grade Dissemination

Instructor will respond to email communication relevant to the subject matter within 48 hours during the work week. Instructor will provide feedback on assignments within one week of the posted deadline, and feedback on final project within two weeks of the posted by the final grading period.

[You can access your scores at any time using "Grades" in Canvas](#)

## USF Core Syllabus Policies

USF has a set of central policies related to student recording class sessions, academic integrity and grievances,

student accessibility services, academic disruption, religious observances, academic continuity, food insecurity, and sexual harassment that **apply to all courses at USF**. These may be accessed on the [USF Core Syllabus Policy Statements page](https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx) at <https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx>.

## COURSE POLICIES: STUDENT EXPECTATIONS

- **Attendance Policy:** Attendance is expected for all classes. I will certainly accommodate excused absences by making arrangements with students ahead of time (when possible) or by providing a reasonable amount of time to make up missed works.
- **Course Hero/Chegg Policy:** The [USF Policy on Academic Integrity](#) specifies that students may not use websites that enable cheating, such as by uploading or downloading material for this purpose. This does apply specifically to Chegg.com and CourseHero.com – **any use of these websites (including uploading proprietary materials) constitutes a violation of the academic integrity policy.**
- **End of Semester Student Evaluations:** All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is expected and valued.
- **Turnitin.com:** **In this course, turnitin.com will be utilized.** Turnitin is an automated system which instructors may use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, you will be expected to submit all assignments in both hard copy and electronic format. After the assignment is processed, as instructor I receive a report from turnitin.com that states if and how another author's work was used in the assignment. For a more detailed look at this process visit <http://www.turnitin.com>. Essays are due at turnitin.com the same day as in class.
- **Title IX Policy:** Title IX provides federal protections for discrimination based on sex, which includes discrimination based on pregnancy, sexual harassment, and interpersonal violence. In an effort to provide support and equal access, USF has designated all faculty (TA, Adjunct, etc.) as Responsible Employees, who are required to report any disclosures of sexual harassment, sexual violence, relationship violence or stalking. The Title IX Office makes every effort, when safe to do so, to reach out and provide resources and accommodations, and to discuss possible options for resolution. Anyone wishing to make a Title IX report or seeking accommodations may do so online, in person, via phone, or email to the Title IX Office. For information about Title IX or for a full list of resources please visit: <https://www.usf.edu/title-ix/gethelp/resources.aspx>. If you are unsure what to do, please contact Victim Advocacy – a confidential resource that can review all your options – at 813-974-5756 or [va@admin.usf.edu](mailto:va@admin.usf.edu).
- **Professionalism Policy:** Per university policy and classroom etiquette; mobile phones, iPods, etc. **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings.

## GENERAL INSTRUCTION FOR STUDENTS

- **Academic Support Services:** [The Information Commons](#) provides students with individual and group study spaces, computers, printers, and various media equipment for temporary use. The Information Commons is staffed by librarians, learning support faculty, tutors, and technology and e-learning specialists. Students challenged by the rigors of academic writing, mathematics, or other course content are urged to contact their professors early in the semester to chart out a plan for academic success, and/or regularly use the tutoring services provided by Learning Support Services (<http://www.usfsm.edu/academics/academic->

[resources/information-commons/tutoring.aspx](#)) which are provided at no cost to students.

- **Career Success Center:** Students can explore careers through activities such as job shadowing, mentoring, and internships. Whether students will be pursuing graduate school or seeking employment, Career Services can help develop a plan to reach their next destination. Students can prepare professional documents, practice for the interview and attend employer or graduate school information sessions. Access these resources or schedule an appointment with career advisors at [www.usfsm.edu/career-services](http://www.usfsm.edu/career-services).

## LEARNING SUPPORT and CAMPUS OFFICES

|                                |  |
|--------------------------------|--|
| <b>Tampa Campus</b>            | <p><b>Tutoring Hub:</b> The Tutoring Hub offers free tutoring in <a href="#">several subjects</a> to USF undergraduates. Appointments are recommended, but not required. For more information, email <a href="mailto:asctampa@usf.edu">asctampa@usf.edu</a></p> <p><b>Writing Studio:</b> The Writing Studio is a free resource for USF undergraduate and graduate students. At the Writing Studio, a trained writing consultant will work individually with you, at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, email <a href="mailto:writingstudio@usf.edu">writingstudio@usf.edu</a></p> <p><b>Counseling Center:</b> The Counseling Center promotes the wellbeing of the campus community by providing culturally sensitive counseling, consultation, prevention, and training that enhances student academic and personal success. Contact information is available <a href="#">online</a>.</p> <p><b>Center for Victim Advocacy:</b> The Center for Victim Advocacy empowers survivors of crime, violence, or abuse by promoting the restoration of decision making, by advocating for their rights, and by offering support and resources. Contact information is available <a href="#">online</a>.</p> |
| <b>St. Petersburg Campus</b>   | <p><b>Student Success Center:</b> The Student Success Center provides free tutoring and writing consultations. Contact information is available <a href="#">online</a>.</p> <p><b>Wellness Center:</b> The Wellness Center provides counseling and medical services, as well as prevention programs and victim advocacy. Contact information is available <a href="#">online</a>.</p>  |
| <b>Sarasota-Manatee Campus</b> | <p><b>Tutoring and Writing Support:</b> Learning Support Services provides free tutoring and writing consultations for a variety of courses and subjects such as, Accounting, Biology, Chemistry, Finance, Math &amp; Statistics, Physics, and Spanish. Make an appointment <a href="#">online</a>.</p> <p><b>Counseling and Wellness Center:</b> The Counseling and Wellness Center is a confidential resource where you can talk about incidents of discrimination and harassment, including sexual harassment, gender-based crimes, sexual assault, stalking, and domestic/relationship violence. Call 941-487-4254</p> <p><b>Victim Advocate:</b> A Victim Advocate is available 24/7 by calling (941) 504-8599. For assistance leave a message with your phone number and your call will be returned as soon as possible. The Victim Advocate is available to assist victims of crime, sexual assault, and partner violence.</p>  |

## COURSE FAQ

**How to communicate with me?** Please email me directly (from your USF email) or message me through Canvas.

### How NOT to communicate with me?

1. Please do not use non-USF emails to email me.
2. Please do not send you assignments, projects, quizzes through email. Everything should be submitted through Canvas.

**How to succeed in this course?** Successful students in this class complete all learning activities including reviewing and taking notes from video lectures before taking quizzes. Successful students would also start working on the assignment and projects soon after they are posted, and utilize the office hours to reach out to the instructor if they have any questions.

### **COURSE SCHEDULE:**

**(Please Note: all dates and assignments are tentative and can be changed at the discretion of the instructor.)**

| <b>Modules<br/>(Class<br/>Date)</b> | <b>Topic</b>  | <b>Assessments</b>                                  | <b>Deadlines</b>                                   |
|-------------------------------------|---|---|--|
| 0                                   | Getting Started, Syllabus, Introductions and first day attendance | First day attendance discussion.                    |  |
| 1<br>2/6                            | Introduction to Cloud Computing                                   | Quiz 1  |  |
| 2<br>2/13                           | Governance and Change management                                  | Quiz 2  |  |
| 3<br>2/20                           | Cloud design considerations                                       | Quiz 3, Begin discussion 1                          | Discussion 1 due at end of module 4                |
| 4<br>2/27                           | Business metrics and use cases                                    | Quiz 4, Complete discussion 1, Begin assignment 1   | Assignment 1 due 14 days after assigned (module 6) |
| 5<br>3/6                            | Architecture executive decision making                            | Quiz 5, Begin discussion 2                          | Discussion 2 due at end of module 6                |
| 3/13 – 3/19                         | Spring Break  |   |  |
| 6<br>3/20                           | Architecting for transition                                       | Quiz 6  |  |
| 7<br>3/27                           | Baseline cloud architectures                                      | Quiz 7, Test 1 (covers modules 1-6)                 |  |
| 8<br>4/3                            | Solution reference architectures                                  | Quiz 8, Begin assignment 2                          | Assignment 2 due 14 days after assigned            |
| 9<br>4/10                           | Key cloud services & Operational requirements                     | Quiz 9, Begin final project                         |  |
| 10<br>4/17                          | Cloud application design and development                          | Quiz 10   |  |
| 11<br>4/27                          | Cloud Security  | Quiz 11, Begin discussion 3                         | Discussion 3 due at end of class                   |
| 12                                  | Final Exam Week   | Test 2 (covering modules 7 – 11), Final project due |  |