Syllabus

INSTRUCTOR INFORMATION: Refer to the Discussion Forum, Facilitator Introduction and Expectations

COURSE TITLE: MSES 642 Deploying and Managing Cloud Infrastructure

COURSE DESCRIPTION:

The purpose of this course explores conceptual and practical frameworks for Deploying and Managing Cloud Infrastructure. Students will focus on obtaining the necessary skills and critical thinking skills to deploy and manage a Cloud environment.

From concept to design and implementation, students will be able to manage an end-to-end deployment of server, software, security and monitoring.

Prerequisite Courses:

Foundational elements from MSES 602 & 618 are necessary to participate in this course.

Course Overview

Students will gain knowledge Cloud deployments and management as it relates to systems engineering. Moreover, students will be in a position to navigate interviews in the sphere of Cloud Deployments and system monitoring and management. The Course will consist of several hands-on labs wherein students will deploy N-tier architecture applications, and manage the environment that they set up. These labs will mimic enterprise architecture and better prepare students for real world applicable interviews as well as give students the necessary skill sets to successfully deploy and manage a Cloud system by themselves.

Key concepts included in this course:

• Configuration of EC2 instances & Operating systems

• Create static web page
• Cloud Storage

• 2- Tier architecture

• Machine images and Scaling

• Security grouping

• Monitoring and alarms

• Architecture and design review

**Course Outcomes:** Upon completion of this course, learners should be able to:

• Deploy open source operating systems to the Cloud via AWS

• Navigate a Cloud Deployment Engineering interview

• Create N-tier architectures

• Set up security groups

• Deploy machine images

• Create monitoring to make a highly available Cloud system

**Course Materials:** Available below in the readings section of Course Assignments and Activities.

**Pre-Assignment:** Create a free AWS account: [https://aws.amazon.com/free/](https://aws.amazon.com/free/)

**Online Format:** Sign on to WorldClass and become familiar with the curriculum and course navigation.

**Classroom-based Format:** Make your introduction and confirm that your free AWS tier is set up.
**Pre-Assignment Due Dates:** Complete by the first Wednesday of class.

**Course Assignments and Activities:**

**Please make sure to submit all assignments in Word or PowerPoint – not PDF**

**Course Assignments and Activities:**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Readings</th>
<th>Activities Assignments and Associated Points</th>
</tr>
</thead>
</table>
| 1 Getting started, Public Cloud | Communications of the ACM [CACM Homepage archive](https://doi.org/10.1145/1561405.1561423)  
Volume 53 Issue 4, April 2010  
Pages 50-58  
[ACM](https://doi.org/10.1145/1561405.1561423) New York, NY, USA  
Cloud Computing Patterns: Fundamentals to Design, Build, and Manage Cloud ...  
p. 21-40 | Forum Discussion (3 pts)  
Lab: Create EC2 and Configure OS (15 pts) |
Lab: Create static page, provide DNS (5 pts) |
| 3 Cloud Storage | [SoCC '10 Proceedings of the 1st ACM symposium on Cloud computing](https://doi.org/10.1145/1561405.1561423)  
Pages 229-240 | Forum Discussion (3 pts)  
Lab: Select and deploy cloud storage (10 pts) |
Lab: Tie lab 1,2,3 together. 2T architecture (10 pts) |
<p>| 5 Highly scalable | Dynamic Scaling of Web Applications in a Virtualized Cloud Computing | Forum Discussion (3 pts) |</p>
<table>
<thead>
<tr>
<th>Enterprise Solutions</th>
<th>Auto-scaling to minimize cost and meet application deadlines in cloud workflows, &quot;2011 International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Seattle, WA, 2011, pp. 1-12.</th>
<th>Lab: Create machine images and deploy scaling solution (10 pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Security in the Cloud</td>
<td>Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance Pages 38-43</td>
<td>Forum Discussion (3 pts) Lab: Create security groups for the created images (6 pts)</td>
</tr>
<tr>
<td>8 Architecture</td>
<td>Cloud Computing Patterns: Fundamentals to Design, Build, and Manage Cloud ... p. 151-160</td>
<td>Forum Discussion (3 pts) Final, Architecture review, .ppt (11a pts)</td>
</tr>
</tbody>
</table>
CC&IS Grading Scale

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93 to 100</td>
<td>4.00</td>
</tr>
<tr>
<td>A–</td>
<td>90 to less than 93</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>87 to less than 90</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>83 to less than 87</td>
<td>3.00</td>
</tr>
<tr>
<td>B–</td>
<td>80 to less than 83</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>77 to less than 80</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>73 to less than 77</td>
<td>2.00</td>
</tr>
<tr>
<td>C–</td>
<td>70 to less than 73</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>67 to less than 70</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>63 to less than 67</td>
<td>1.00</td>
</tr>
<tr>
<td>D–</td>
<td>60 to less than 63</td>
<td>.67</td>
</tr>
<tr>
<td>F</td>
<td>Less than 60</td>
<td>0</td>
</tr>
</tbody>
</table>

Additional information about grading can be found in the latest edition of the University Catalog, available at [http://www.regis.edu/Academics/Course%20Catalog.aspx](http://www.regis.edu/Academics/Course%20Catalog.aspx).

CC&IS Policies and Procedures

Each of the following CC&IS Policies & Procedures is incorporated here by reference. Students are expected to review this information each term, and agree to the policies and procedures as identified here and specified in the latest edition of the University Catalog, available at [http://www.regis.edu/Academics/Course%20Catalog.aspx](http://www.regis.edu/Academics/Course%20Catalog.aspx) or at the link provided.

- The CC&IS Academic Integrity Policy.
- The Student Honor Code and Student Standards of Conduct.
- Incomplete Grade Policy, Pass / No Pass Grades, Grade Reports.
- The Information Privacy policy and FERPA. For more information regarding FERPA, visit the [U.S. Department of Education](http://www.ed.gov).
- The HIPPA policies for protected health information. The complete Regis University HIPAA Privacy & Security policy can be found here: [http://www.regis.edu/About-Regis-University/University-Offices-and-Services/Auxiliary-Business/HIPAA.aspx](http://www.regis.edu/About-Regis-University/University-Offices-and-Services/Auxiliary-Business/HIPAA.aspx).

The CC&IS Policies & Procedures Syllabus Addendum summarizes additional important policies including, Diversity, Equal Access, Disability Services, and Attendance & Participation that apply to every course offered by the College of Computer & Information Sciences at Regis University. A copy of the CC&IS Policies & Procedures Syllabus Addendum can be found here: [https://in2.regis.edu/sites/ccis/policies/Repository/CCIS%20Syllabus%20Addendum.docx](https://in2.regis.edu/sites/ccis/policies/Repository/CCIS%20Syllabus%20Addendum.docx).