# American Public University System

*The Ultimate Advantage is an Educated Mind*

---

**School of Science and Technology**
**Department of Information Technology**
**ISSC326 Cloud Computing**
**3 Credit Hours**
**8 Weeks**
**Prerequisite(s): None**

---

## Table of Contents

| | |
|---|---|
| Instructor Information | Evaluation Procedures |
| Course Description | Grading Scale |
| Course Scope | Course Outline |
| Course Objectives | Policies |
| Course Delivery Method | Academic Services |
| Course Materials | Selected Bibliography |

## Instructor Information

**Instructor:** (**Bio**)
**Email:**
**Phone:**
**Office hours:**

Table of Contents

## Course Description (Catalog)

This course will delve into all aspects of a Cloud Computing implementation, starting from a definition of what it actually means and assessment of whether it is suitable for a given company to the strategy alignment, implementation and operation of a working solution. It will cover Infrastructure-as-a-Service, Platform-as-a-Service, and Software-as-a-Service as the many integration and management components that are necessary to make this work together to fulfill business requirements.

Table of Contents

## Course Scope

This Cloud Computing course is designed to introduce the student to cloud computing. in today's business environment. It begins with a definition of key elements and concepts related to cloud computing. The course will provide an examination the different ways to deliver IT and how cloud computing compares to managed services and on premise IT. We will look at both technical and fiscal reasons businesses may choose cloud computing. You will describe how information systems transform business processes within the modern corporate organization. The course concludes with the application of these concepts in a detailed proposal for the organization given

Note to Students: The course materials, assignments, learning outcomes, and expectations in this upper level undergraduate course assume that the student has completed all lower level general education and career planning coursework necessary to develop research, writing, and critical thinking skills. Students who have not fulfilled all general education requirements through courses or awarded transfer credit should strongly consider completing these requirements prior to registering for this course.

This course has been evaluated by the American Council on Education. Credit Recommendation - at the upper level/baccalaureate degree level 3 semester hours in Management Information Systems

## Course Objectives

The successful student will fulfill the following learning objectives:

1.  Define and explore the meaning of the term and its context; consider the different manifestations of private, public and partner clouds delivered as Software-as-a-Service, Platform-as-a-Service and Infrastructure-as-a-Service
2.  Assess a sober means to evaluate when and where it is applicable, considering financial, strategic and risk implications
3.  Design and establish a high-level approach and methodology for evaluating, planning and implementing cloud computing
4.  Select the optimal suite of applications and services to solve a business problem, how to target the best user groups and identify the best offerings to meet the business needs
5.  Integrate together all the different components and connect them with the legacy infrastructure; considers end-to-end design, connectivity, resilience and security
6.  Implement to make the design actually work, including technical migration and organizational changes
7.  Operate day-to-day service management, administration, monitoring and support implications of cloud solutions
8.  Control the core problems of compliance, risk and governance as they manifest themselves in cloud computing
9.  Adapt to continuously refine a cloud-based solution in order to optimize it in a dynamic environment
10. Evolve technological changes on the horizon for cloud computing and their potential effect on cloud services

## Course Delivery Method

This B.A. in Business Administration course delivered via distance learning will enable students to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to each student. Online assignments include Forum questions (accomplished in groups through a threaded Forum), examinations and quizzes (graded electronically), and individual assignments (submitted for review by the Faculty Member). Assigned faculty will support the students throughout this eight-week course.

## Course Materials

### Required Text

Cloud Computing Architected: Solution Design Handbook by J. Rhoton & R. Haukioja. 384 pages. Recursive Press (May 3, 2011).  ISBN: 0956355617/978-0956355614

U.S Department of Commerce National Institute of Standards and Technology (December 2011),
*Guidelines on Security and Privacy in Public Cloud Computing  (*Special Publication 800-144)
Retrieved from NSIT Main Page via database:
http://www.nist.gov


Modeling the Economic Impact of Cloud Computing by KPMG International Retrieved from
http://www.kpmg.com/AU/en/IssuesAndInsights/ArticlesPublications/Documents/modelling-economic-impact-cloud-computing.pdf


## Optional Text
*Publication manual of the American Psychological Association* (6th ed.). (2010). Washington, D.C.: American Psychological Association.

## Software Requirements

- MS Word 2010
- Adobe Acrobat Reader (Click here for free download)

## Evaluation Procedures


Your final course grade will be based upon the following:


| Course Requirements | Percentage |
| --- | --- |
| Forums | 35 |
| Proposal Outline | 15 |
| Proposal | 30 |
| Midterm Essay | 10 |
| Final Essay | 10 |
| Total | 100 |


**Forums**

Most weeks you will participate in a Forum activity.  Each Forum activity will consist of one or more threads/topics.  The questions are designed to allow you to apply the concepts you have learned in the chapter to real-world business scenarios or hypothetical, but realistic, situations. Please post your answers to the questions in each thread prior to **11:59 p.m. Eastern Time on Thursday.** Although it is not **required until Sunday,** those that post by Thursday enable a real conversation in the classroom. Also, if I see you are short of any requirements it allows time for corrections.  Your initial post must be a **minimum of 350 words.** Please do not be late with this post because your classmates will be relying on you to post on time to give them a post to respond to later in the week.  The only exception to the Thursday deadline is week one of the course when your initial post will not be due until Sunday.  Continue to read your classmates' posts and post at least **one** follow-up post to one of your classmates prior to **11:59 p.m. Eastern Time on Sunday.**  Your follow-up post must be a **minimum of 150 words.** Of course, you may always post more than the required number of replies and you are encouraged to continue participating in the discussion even after you have met the minimum number of posts required. Your follow-up posts must contain substance and should add additional insight to your classmates' opinions or challenge their opinions.  It is never sufficient to simply say, "I agree with what you wrote" or "Good post."  You must use your follow-up posts as a way to continue the discussion at a high level of thinking.  Be sure to read the follow-up posts to your own posts and reply to any questions or requests for clarification, including questions posted by your professor.  You will be expected to log into the classroom

several times each week to participate in the class discussion.  Forum postings are a large part of your grade and I will be looking for quality and depth in your postings.


**Midterm Case Study**

The Midterm Case Study will test all material covered through week 4 in this course.  This Case Study is open book, non-proctored and can be accessed as often as you need.  This is completed by the end of **Week 4.**   You may only submit the Case Study one time.

**Final Case Study**

The Final Case Study will test all material covered in weeks 5 through 8 of this course.  This Case Study is open book, non-proctored and can be accessed as often as you need.  This is completed by the end of **Week 7.**     You may only submit the Case Study one time.

**Proposal**

Preliminary Investigation Outline will be due at the end of **Week 3.** In this essay, you are to write a 3-4 page outline of your Preliminary Investigation, recommending a solution to organizational needs as presented in Organization document in resources.  The Preliminary Investigation template is in the resources.  The first four stages should be complete with explanations on how requirements in 5 and 6 will be accomplished.

Preliminary Investigation will be due at the end of **Week 8.** It is 6-10 page (not including cover sheet) proposal comparing a standard non-cloud solution and two different cloud service models.  From the three solutions presented give recommendation and reasoning.

Table of Contents


| **Grading Scale** |
| --- |

Please see the **student handbook** to reference the **University's grading scale**.

| **Course Outline** |
| --- |


| **Week** | **Reading(s)** | **Learning Objectives** | **Assignment(s)** |
| --- | --- | --- | --- |
| 1 | CC Architected Ch. 1-3, NIST 800-144 Sect 1-2 | CO-1 With a focus on definition of what is and what is not cloud and delivery models. | Forum 1 |
| 2 | CC Architected Ch. 4-8, NIST 800-144 Sect 3 | CO1 With a focus on differentiating Software-as-a-Service, Platform-as-a-Service and Infrastructure-as-a-Service | Forum 2 |
| 3 | CC Architected Ch. 9-12 KMP Sect 4 | CO2.    Evaluate when and where Cloud Computing is applicable, considering financial, strategic and risk implications. | Forum 3 Proposal Outline |

| | | | |
|---|---|---|---|
| **4** | CC Architected Ch. 13-16, NIST 800-144 Sect 4-5 | CO4.    Select the optimal suite of applications and services to solve a business problem. | Midterm Case Study |
| **5** | CC Architected Ch.17-21, | CO3.    Design methodology for implementing cloud computing. | Forum 5 |
| **6** | CC Architected Ch 22-23 | CO5    Integrate components with the legacy infrastructure; considers end-to-end design, connectivity, resilience and security. | Forum 6 |
| **7** | CC Architected Ch24-27 | CO7, CO8.        With a focus on application of principle to meet reliability requirements | Final Case Study |
| **8** | CC Architected Ch. 28-31 | CO9, CO10.       With a focus on monitoring method that enable modification as needs change | Forum 8 Final Proposal |

## Policies

Please see the **student handbook** to reference all University policies. Quick links to frequently asked question about policies are listed below.

**Drop/Withdrawal Policy**
**Plagiarism Policy**
**Extension Process and Policy**

### WRITING EXPECTATIONS
All written submissions should be submitted in a font and page set-up that is readable and neat. It is recommended that students try to adhere to a consistent format, which is described below.
- Typewritten in double-spaced format with a readable style and font and submitted inside the electronic classroom (unless classroom access is not possible and other arrangements have been approved by the professor).
- Arial 11 or 12-point font or Times New Roman styles.
- Page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation being made for special situations and online submission variances.

### CITATION AND REFERENCE STYLE
Assignments completed in a narrative essay or composition format must follow APA guidelines. This course will require students to use the citation and reference style established by the American Psychological Association (APA), in which case students should follow the guidelines set forth in *Publication Manual of the American Psychological Association* (6th ed.). (2010). Washington, D.C.: American Psychological Association.

## Academic Services

## ONLINE LIBRARY RESEARCH CENTER & LEARNING RESOURCES

The Online Library Resource Center is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Center provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to orc@apus.edu.

- *Charles Town Library and Inter Library Loan:* The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- *Electronic Books:* You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- *Electronic Journals:* The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- *Turnitin.com:* **Turnitin.com** is a tool to improve student research skills that also detect plagiarism. Turnitin.com provides resources on developing topics and assignments that encourage and guide students in producing papers that are intellectually honest, original in thought, and clear in expression. This tool helps ensure a culture of adherence to the University's standards for intellectual honesty. Turnitin.com also reviews students' papers for matches with Internet materials and with thousands of student papers in its database, and returns an Originality Report to instructors and/or students.

## Selected Bibliography

U.S Department of Commerce National Institute of Standards and Technology (December 2011), *Guidelines on Security and Privacy in Public Cloud Computing (*Special Publication 800-144)

## Appendix A – Grading Rubric

All written assignments will be assessed according to this rubric.  Note that a score of 0 may be assigned in any category where your work does not meet the criteria for the beginning level.

| APUS Assignment Rubric Undergraduate Level 300-400 | EXEMPLARY LEVEL 4 | ACCOMPLISHED LEVEL 3 | DEVELOPING LEVEL 2 | BEGINNNIG LEVEL 1 | TOTAL POINTS |
|---|---|---|---|---|---|
| **FOCUS/THESIS** | Student exhibits a defined and clear understanding of the assignment.  Thesis is clearly defined and well constructed to help guide the reader throughout the assignment.  Student builds upon the thesis of the assignment with well-documented and exceptional supporting facts, figures, and/or statements. | Establishes a good comprehension of topic and in the building of the thesis.  Student demonstrates an effective presentation of thesis, with most support statements helping to support the key focus of assignment. | Student exhibits a basic understanding of the intended assignment, but the thesis is not fully supported throughout the assignment.  While thesis helps to guide the development of the assignment, the reader may have some difficulty in seeing linkages between thoughts.  While student has included a few supporting facts and statements, this has limited the quality of the assignment. | Exhibits a limited understanding of the assignment.  Reader is unable to follow the logic used for the thesis and development of key themes.  Introduction of thesis is not clearly evident, and reader must look deeper to discover the focus of the writer.  Student's writing is weak in the inclusion of supporting facts or statements. | 10 |
| **CONTENT/SUBJECT KNOWLEDGE** | Student demonstrates proficient command of the subject matter in the assignment.  Assignment shows an impressive level of depth of student's ability to relate course content to practical examples and applications.  Student provides comprehensive analysis of details, facts, and concepts in a logical sequence. | Student exhibits above average usage of subject matter in assignment.  Student provides above average ability in relating course content in examples given.  Details and facts presented provide an adequate presentation of student's current level of subject matter knowledge. | The assignment reveals that the student has a general, fundamental understanding of the course material.  Whereas, there are areas of some concerning in the linkages provided between facts and supporting statements.  Student generally explains concepts, but only meets the minimum requirements in this area. | Student tries to explain some concepts, but overlooks critical details.  Assignment appears vague or incomplete in various segments.  Student presents concepts in isolation, and does not perceive to have a logical sequencing of ideas. | 20 |

| | | | | | |
|---|---|---|---|---|---|
| **CRITICAL THINKING SKILLS** | Student demonstrates a higher-level of critical thinking necessary for 300-400 level work. Learner provides a strategic approach in presenting examples of problem solving or critical thinking, while drawing logical conclusions which are not immediately obvious. Student provides well-supported ideas and reflection with a variety of current and/or world views in the assignment. Student presents a genuine intellectual development of ideas throughout assignment. | Student exhibits a good command of critical thinking skills in the presentation of material and supporting statements. Assignment demonstrates the student's above average use of relating concepts by using a variety of factors. Overall, student provides adequate conclusions, with 2 or fewer errors. | Student takes a common, conventional approach in guiding the reader through various linkages and connections presented in assignment. However, student presents a limited perspective on key concepts throughout assignment. Student appears to have problems applying information in a problem-solving manner. | Student demonstrates beginning understanding of key concepts, but overlooks critical details. Learner is unable to apply information in a problem-solving fashion. Student presents confusing statements and facts in assignment. No evidence or little semblance of critical thinking skills. | 20 |
| **ORGANIZATION OF IDEAS/FORMAT** | Student thoroughly understands and excels in explaining all major points. An original, unique, and/or imaginative approach to overall ideas, concepts, and findings is presented. Overall format of assignment includes an appropriate introduction (or abstract), well- developed paragraphs, and conclusion. Finished assignment demonstrates student's ability to plan and organize research in a logical sequence. Student uses at least of 5-7 references in assignment. | Student explains the majority of points and concepts in the assignment. Learner demonstrates a good skill level in formatting and organizing material in assignment. Student presents an above average level of preparedness, with a few formatting errors. Assignment contains less than 5 resources. | Learner applies some points and concepts incorrectly. Student uses a variety of formatting styles, with some inconsistencies throughout the paper. Assignment does not have a continuous pattern of logical sequencing. Student uses less than 3 sources or references. | Assignment reveals formatting errors and a lack of organization. Student presents an incomplete attempt to provide linkages or explanation of key terms. The lack of appropriate references or source materials demonstrates the student's need for additional help or training in this area. Student needs to review and revise the assignment. | 20 |
| **WRITING CONVENTIONS (GRAMMAR & MECHANICS)** | Student demonstrates an excellent command of grammar, as well as presents research in a clear and concise writing style. Presents a thorough, extensive | Student provides an effective display of good writing and grammar. Assignment reflects student's ability to select appropriate word usage | Assignment reflects basic writing and grammar, but more than 5 errors. Key terms and concepts are somewhat vague and not completely explained by | Topics, concepts, and ideas are not coherently discussed or expressed in assignments. Student's writing style is weak and needs | 20 |

| | | | | | |
|---|---|---|---|---|---|
| | understanding of word usage. Student excels in the selection and development of a well-planned research assignment. Assignment is error-free and reflects student's ability to prepare a high-quality academic assignment. | and present an above average presentation of a given topic or issue. Assignment appears to be well written with no more than 3-5 errors. Student provides a final written product that covers the above-minimal requirements. | student. Student uses a basic vocabulary in assignment. Student's writing ability is average, but demonstrates a basic understanding of the subject matter. | improvement, along with numerous proofreading errors. Assignment lacks clarity, consistency, and correctness. Student needs to review and revise assignment. | |
| **USE OF COMPUTER TECHNOLOGY/ APPLICATIONS** | Student provides a high-caliber, formatted assignment. Learner exhibits excellent use of computer technology in the development of assignment. Quality and appropriateness of stated references demonstrate the student's ability to use technology to conduct applicable research. Given assignment includes appropriate word processing, spreadsheet and/or other computer applications as part of the final product. | Assignment presents an above-average use of formatting skills, with less than 3 errors. Students has a good command of computer applications to format information and/or figures in an appropriate format. Student uses at least two types of computer applications to produce a quality assignment. | Student demonstrates a basic knowledge of computer applications. Appearance of final assignment demonstrates the student's limited ability to format and present data. Resources used in assignment are limited. Student may need to obtain further help in the use of computer applications and Internet research. | Student needs to develop better formatting skills. The student may need to take additional training or obtain help from the Educator Help Desk while preparing an assignment. Research and resources presented in the assignment are limited. Student needs to expand research scope. The number of formatting errors is not acceptable. | 10 |
| **TOTAL POINTS** | | | | | 100 |