**Course # and Name:** IFS335 Cloud Infrastructure

**Faculty:** Prof. R. Eric Hostler

**Credit Hours:** 3

**Office Location:** WBC 204

**Office Hours:** MWF 11 AM – 12 PM, 2 PM – 3 PM

**Course Prerequisites:** Successful completion of [IFS](https://catalog.ycp.edu/content.php?filter%5B27%5D=IFS&filter%5B29%5D=&filter%5Bcourse_type%5D=-1&filter%5Bkeyword%5D=&filter%5B32%5D=1&filter%5Bcpage%5D=1&cur_cat_oid=20&expand=&navoid=764&search_database=Filter#tt3597) 230 with a grade of 2.0 or higher

**Class Day/Time/Loc:** MWF 1:00 – 1:50 PM, WBC 408

**Email:** ehostler@ycp.edu

**Phone Number:** 717-815-1947

**Mission Statement**: The Graham School of Business at York College of Pennsylvania provides distinctive, high caliber business education that prepares individuals for successful careers and personal growth. We provide students with an education that encourages intellectual development while also meeting the specific needs of the business community through a dynamic, experiential business curriculum.

**Vision Statement**: The Graham School of Business at York College of Pennsylvania will be recognized as a leading business educator in the Mid-Atlantic region. Our business students will be regarded as the best and most sought after graduates due to exceptional academic preparation, professionalism and integrated business problem-solving experiences.

**I. Course description (from the catalog)**:

This course provides the student with the abil­ity to design and support complex enterprise-wide networking solutions. It studies the conceptual de­sign methodologies, planning and complexity involved in establishing and supporting organization connectivity. Emphasis will be on issues relating to designing and implementing IP infrastructure, directory services, file and print sharing, file system security, data storage technologies, and thin client. Consideration will be given to Novell, UNIX/Linux, and Microsoft based network infrastructures. Hands-on lab exercises are used extensively throughout the course.

**II. Course core learning objectives**:

The student will understand the:

* creation and management of network user accounts and security groups
* concepts and rational behind distributed network directories, specifically Microsoft's Active Directory
* use of advanced disk storage systems and their implementation
* planning and development involved in the implementation of an effective network environment
* principles of effective network security practices
* use of DHCP, DNS and WINS in implementing a TCP/IP network infrastructure
* importance of an effective data backup and recovery regiment and policy
* how various network technologies fit within the framework of small, medium, and large business environments

Topics include:

* Server Virtualization
* DNS infrastructure design and implementation
* Directory Services (Active Directory, LDAP)
* DHCP infrastructure design and implementation
* User and Group account types and usage
* File system security
* Data Backup technologies
* Fault Tolerance (clustering and RAID)
* Thin Client / Remote Desktop Services

**III. A. Required Textbook**: None

**III. B. Suggested Other resources**:

**IV. Instructor’s educational philosophy**:

My role is to facilitate the student’s learning process. Learning is a process that students need to be an active participant of to benefit from. I expect my students to take some measure of responsibility for their own education. An education, like a grade, is not given, but earned. The things in life worth having are worth working for to acquire, and there are few things more valuable than an education. Some students feel I expect a lot, while others do not. I see that not as a reflection of my expectations of the student, but as a reflection of their own motivation and desire to learn. If the student is motivated to learn and expects to put forth some effort to master the material in the course, then they usually do not think I have high expectations. However, those students who are entirely focused on their grade, and expect to come to class and do nothing and receive a passing grade often feel that I expect too much. Think of this as a partnership. You do your part, and I’ll do mine. I’m willing to work as hard at teaching you something as you are at working to learn something. The more you put into it, the more you’ll get out of it. I also encourage you to come and see me outside of class. I have office hours for a reason. It’s up to you to take advantage of that time to seek whatever help you feel you need from me. Remember, I teach because I want you to learn something, not because I enjoy seeing students fail.

**V. Class assessment**:

Course assessment will include two evaluation methods – exams and lab assignments. The exams will cover the concepts and terminology presented for each topic. The lab assignments will require students to apply the concepts learned in class to implementation scenarios which they may encounter in a cloud based IT environment. The distribution of points and their proportion of the overall course grade are covered below in the “Grading” section of the syllabus.

**VI. Late submission of assignments**:

Assignments will not be accepted late. If the student is not able to attend class on the date of an exam, the student must notify the instructor prior to the exam date so that a make-up exam can be scheduled. Missed exams without prior notification will only be rescheduled in the event of extraordinary events outside of the student’s control. If the student misses an exam due to illness, a doctor’s note is required to avoid penalization.

**VII. Grading**: Grades will be available on the course page on Canvas. The following represents the tentative distribution of values applied to course requirements:

|  |  |
| --- | --- |
| Exam 1 | 100 points |
| Exam 2 | 100 points |
| Exam 3 | 100 points |
| Exam 4 | 100 points |
| Lab Assignments (6) | 30 points each |
| AWS Assessments (10) | 20 points each |
| **Total** | 780 points |

**Grading Scale**:

|  |  |
| --- | --- |
| ***Score*** | ***Grade*** |
| 90-100 | A (4) |
| 85-89 | B+ (3.5) |
| 80-84 | B (3) |
| 75-79 | C+ (2.5) |
| 70-74 | C (2) |
| 60-69 | D (1) |
| Below 60 | F |

**Grading policy**: The grading policy can be also be found in the student handbook.

* 4 (Excellent): This grade denotes accomplishment that is truly distinctive and decidedly outstanding. It represents a high degree of attainment and is a grade that demands evidence of originality, independent work, an open and discriminating mind, and completeness and accuracy of knowledge, as well as an effective use of the knowledge.
* 3.5 (Very Good): This grade denotes mastery of the subject matter. It represents very good achievement in many aspects of the work, such as initiative, serious and determined industry, the ability to organize work, and the ability to comprehend and retain subject matter and to apply it to new problems and contexts.
* 3 (Good): This grade denotes considerable understanding of the subject matter. It represents a strong grasp and clear understanding of the subject matter and the ability to comprehend and retain course content.
* 2.5 (Above Average): This grade denotes above average understanding of the subject matter. It represents a good grasp of the subject matter and the ability to comprehend and retain course content.
* 2 (Average): This grade denotes average understanding of the subject matter. It represents the grade that may be expected of a student of normal ability who gives the work a reasonable amount of time and effort.
* 1 (Below Average): This grade denotes below average understanding of the subject matter. It represents work that falls below the acceptable standard.
* 0 (Failure): This grade denotes inadequate understanding of the subject matter. It signifies an absence of meaningful engagement with the subject matter and that the student is not capable of doing or understanding the work or has made little or no effort to do so.
* I (Incomplete): The student may request permission from the instructor to receive an incomplete prior to the final examination and must present extraordinary reasons for the petition. The Instructor should indicate on the Attendance/Final Grade Record the required work the student must do to complete the course. Any grades of “I” not removed within two calendar months after the end of the semester will automatically be changed to “0” in the Records Office. Grades of incomplete should only be provided to students who have completed a substantial portion of all course requirements.
* W (Withdrawal): Students are permitted to withdraw from courses without penalty up to the ninth Friday of the fall or spring semester. Corresponding deadlines are set for all other semesters (e.g., summer sessions). Withdrawal after that time shall result in a grade of “0.”

**VIII. Student Accessibility Services**: If you had an IEP or 504 plan in high school or if you have a disability or health condition that impacts you in the classroom, please contact Linda Miller, Director of Student Accessibility Services, at 815-1785 or [lmille18@ycp.edu](mailto:lmille18@ycp.edu) to discuss obtaining the accommodations for which you may be eligible. If you already have an accommodation memo and wish to access your accommodations in this class, please see me confidentially to discuss.

**IX. Classroom code of conduct**: Students are expected to be respectful of their classmates. Cell phones should be set in silent ring mode while in class and turned off during exams. If a call must be taken, the student is expected to quietly excuse themselves from the room so as not to disturb the class. Laptops may be used in the classroom as long as their use does not distract the students around you. Finally, it is expected that courtesy and respect will be shown to other students and the instructor at all times.

**X. Attendance policy:** In order to comply with government student loan regulations, attendance will be recorded.

Attendance will be taken in accordance with the college’s attendance policy in regards to student financial aid. It is the student’s responsibility to know how class attendance will affect their financial aid eligibility. Actual attendance will not affect the student’s grade directly, but students who choose not to attend regularly should be aware that it is very difficult to do well in a course that they rarely attend. Participation, and consequently attendance, has an impact on what the student learns. Students are expected to act like responsible adults and make their own decisions on how their time is best spent.

**XI. Academic Integrity Policy (Philosophy Statement)**: York College of Pennsylvania, as an institution of higher education, serves to promote and sustain the creation, acquisition, and dissemination of knowledge.  In order to fulfill this purpose, an environment of integrity, dependability and honesty must be maintained by all members of the York College community.  Without a foundation based on intellectual honesty and integrity, the very ability to uphold the academic endeavors that York College strives to pursue is inhibited.

The Spartan Oath embodies the expectation that all members of the York College community foster an environment of integrity and responsibility.  Recognize that adhering to an ethical standard of honesty leads to professional, mature and responsible citizens, and enables society at large to trust our scholarship, research, and conferred degrees. Thus, each member of the York College community must be truthful, honest, personally and professionally responsible, and respect the intellectual contributions of others.

Definition of Academic Dishonesty: Engaging in academic dishonesty is a violation of the school’s academic integrity policy and is not tolerated at York College.  Examples of academic dishonesty include, but are not limited to, cheating on assignments or examinations, plagiarism (i.e. passing someone else’s words or ideas off as one’s own without proper attribution), improper paraphrasing, fabricating research, falsifying academic documents, handing in material completed for another course, and submitting work not done independently (unless part of an explicitly collaborative project).

The procedures for Academic Integrity Reporting and Appeals may be found in the College Catalog at:  <https://catalog.ycp.edu/content.php?catoid=20&navoid=760#Academic_Integrity>

**XII. Statement on Remote Learning**

To achieve the learning outcomes of this course in a remote environment, students must play an active and professional role in their studies.

*Synchronous meetings (i.e. Zoom)*: Professional engagement is required. Attend in attire appropriate for a classroom, with a neutral background and setting. Keep your camera on unless you have created an alternate arrangement with your professor. Maintain a seated position; do not recline. To minimize distractions, remain muted when you are not speaking.

*Online Forums*: Being polite and respectful of classmates’ views is critical in a productive and supportive online learning environment. Choose your wording carefully, while staying on topic. Use proper, professional spelling and grammar; avoid ambiguous abbreviations, images, and caps lock. Each student should be able to express thoughts openly, with their contribution valued by both classmates and the instructor.

*Email*: The most effective way to contact me is through email (professor@ycp.edu). Please do so in professional fashion (i.e. proper addressing of instructor, use of a subject line, appropriate spelling and grammar). In general, I will attempt to respond to all student communication within 24 hours.

**XIII. Communication standards / email expectations**: York College recognizes the importance of effective communication in all disciplines and careers. Therefore students are expected to competently analyze, synthesize, organize, and articulate course material in papers, examinations, and presentations. In addition, students should know and use communication skills current to their field of study, recognize the need for revision as part of their writing process, and employ standard conventions of English usage in both writing and speaking. Students may be asked to further revise assignments that do not demonstrate effective use of these communication skills.

**XIV. Course changes:** While this syllabus and the attached assignment list are correct at the beginning of the semester, changes may occur.

**XV. Course details and assignments**:

|  |  |  |  |
| --- | --- | --- | --- |
| Week 1 | Feb 1 – Feb 5 |  |  |
|  | Mon | Course Introduction |  |
|  | Wed | AWS Account Setup |  |
|  | Fri | Cloud Concepts |  |
| Week 2 | Feb 8 – Feb 12 |  |  |
|  | Mon | Cloud Concepts |  |
|  | Wed | Cloud Concepts |  |
|  | Fri |  | Module 1 - Cloud Concepts |
| Week 3 | Feb 15 – Feb 19 |  |  |
|  | Mon | Cloud Economics |  |
|  | Wed | Cloud Economics |  |
|  | Fri |  | Module 2 - Cloud Economics and Billing |
| Week 4 | Feb 22 – Feb 26 |  |  |
|  | Mon | AWS Global Infrastructure |  |
|  | Wed | AWS Global Infrastructure |  |
|  | Fri |  | Module 3 - AWS Global Infrastructure |
| Week 5 | Mar 1 – Mar 5 |  |  |
|  | Mon | Cloud Security | Exam 1 – Cloud Concepts, Econ, Global Infra |
|  | Wed | Directory Services |  |
|  | Fri |  | Module 4 - AWS Cloud Security |
| Week 6 | Mar 8 – Mar 12 |  |  |
|  | Mon | Directory Services |  |
|  | Wed | Users and Groups | Lab 1 – Intro to AWS IAM |
|  | Fri |  |  |
| Week 7 | Mar 15 – Mar 19 |  |  |
|  | Mon | Users and Groups |  |
|  | Wed | DHCP |  |
|  | Fri |  |  |
| Week 8 | Mar 22 – Mar 26 |  |  |
|  | Mon | DHCP |  |
|  | Wed | DNS | Lab 2 – Build your VPC & Launch Web Server |
|  | Fri |  | Module 5 - Networking and Content Delivery |
| Week 9 | Mar 29 – Apr 2 |  |  |
|  | Mon | DNS |  |
|  | Wed | Virtualization | Exam 2 – Cloud Security, Networking |
|  | Fri | **Easter Break** |  |
| Week 10 | Apr 5 – Apr 9 |  |  |
|  | Mon | Virtualization |  |
|  | Wed | EC2 | Lab 3 – Intro to Amazon EC2 |
|  | Fri |  | Module 6 - Compute |
| Week 11 | Apr 12 – Apr 16 |  |  |
|  | Mon | Data Storage |  |
|  | Wed | Data Storage | Lab 4 – Working with EBS |
|  | Fri |  | Module 7 - Storage |
| Week 12 | Apr 19 – Apr 23 |  |  |
|  | Mon | AWS Database Services | Exam 3 – Virtualization, Data Storage |
|  | Wed | AWS Database Services | Lab 5 – Build a Database Server |
|  | Fri |  | Module 8 - Databases |
| Week 13 | Apr 26 – Apr 30 |  |  |
|  | Mon | Cloud Architecture |  |
|  | Wed | Auto Scaling | Lab 6 – Scale and Load Balance your Arch |
|  | Fri |  | Module 9 - Cloud Architecture |
| Week 14 | May 3 – May 7 |  |  |
|  | Mon | Auto Scaling |  |
|  | Wed |  | Module 10 - Auto Scaling and Monitoring |
|  | Fri | **Reading Day** |  |
| Week 15 | May 10 – May 13 |  |  |
|  | Mon | **Final Exams** |  |
|  | Wed | **Final Exams** | Exam 4 – Database, Cloud Arch, Auto-Scaling |
|  | Fri | **Final Exams** |  |

**Exams are in blue Assignments are in green**

**XVI. Bibliography**

**XVII. Miscellaneous**

**XVIII. Faculty Information**