**Introduction to Enterprise Servers – zSeries**

**Walker 403 – Tuesday evenings (see specific dates below) (6:00 – 9:00 pm)**

**Class Leader: Dr. David Douglas (ddouglas@walton.uark.edu)**

This course is designed for you to learn about the basic architectural concepts of IBM’s System z (referred to as a mainframe) computing platform and the basis of decisions to use a mainframe. The course also provides advantages/disadvantages of the zSeries including total cost of ownership, scalability, performance, administration, availability, system, memory management, security and connectivity advantages (virtual networking). You will learn such concepts of a Geographically Dispersed Parallel Sysplex system, virtualization, reliability, accessibility and scalability.

Students will become comfortable operationally with two of the System z’s operating system – z/OS and zLinux--and applying them to applications. Further, you will become proficient in creating/editing/deleting files as well as using the operating systems to run applications. Again, this course will include both z/OS and zLinux on the mainframe. Linux is growing in popularity and this course shows how Linux on zSeries fits into the e-business/e-server. Practical exercises for both computing environments are included in the class.

Note that IBM has continued to develop outstanding systems management and application development tools; and transform the platform to be an excellent choice for Service Oriented Applications (SOA) – Web Services—and cloud computing. The class will make extensive use of RDz (Rational Developer for z).

**Value of the Course**:

Myths have always been prevalent in computing. For example, Cobol is dead, case tools are the silver bullet, object-oriented programming is always best, mainframes are an old technology and thus obsolete, etc. For example, Stewart Alsop made the following quote in InfoWorld in March, 1991, “I predict that the last mainframe will be unplugged on March 15, 1996.” Note that mainframe computing evolves just like any other technology and now a mainframe computer (zSeries) is just another server —albeit the most scalable and reliable server platform for most large companies. The zSeries is experiencing a period of growth and momentum – five consecutive quarters of YTY revenue growth and eight quarters of MIPS growth.

The z Series now supports multiple operating systems (z/OS, UNIX and zLinux). Linux is the fastest growing open source operating system. Thus, in this course, you gain skills in both the z/OS and zLinux operating environments (including RDz with both) which will provide you an advantage when seeking a job with large companies.

**Prerequisites**:

1. Knowledgeable and experience with any operating system – Windows, Linux, etc.

2. Access to Internet and Internet Explorer Version 7.0 or higher

3. Interest in gaining knowledge and experience that is **valuable** but not readily available.

**Course goals**:

1. Be able to express the benefits of a mainframe including
   1. Z Series architectural concepts
   2. Consolidation and TCO advantages of this environment
   3. Major applications running on the mainframe as well as the type of applications for which it makes sense to put on a mainframe
   4. The role of JCL for scheduling and batch processing
   5. How z/VM exploits virtualization and allows Linux to be run as a virtual guest
   6. Know the value of Linux on the mainframe
2. System z skills under zOS
   1. Be able to navigate TSO/ISPF and RDz environments
   2. Be able to create partitioned datasets; edit, upload, download files
   3. Be able to use selected utilities including IDCAMS to create VSAM files
   4. Be able to run simple programs that utilize files and JCL on the mainframe
3. Linux skills using the Integrated Facility for Linux.
   1. Be able to effectively work in the Linux environment including RDz
   2. Be able to do essential system tasks
   3. Be able to work with files including creation, editing, coping, etc.
   4. Be able to write basic Linux scripts
   5. Be able to create Web sites using LAMP (Linux, Apache, mySQL, PHP)

**Required Reading**: Lecture material associated with the course. Extracts from IBM

manuals, and papers are provided.

**Lecture Schedule**: The Exams (midterm and final) cover all the material from the lectures prior to the date on which they are scheduled. The final is not cumulative; it begins with material not already tested on the midterm exam. The exams are timed. There will also be projects – some will be done in class and others will be homework projects.

* Our last regularly scheduled class meeting will be on December 3.
* The final will be given on December 10.

**General Discussion, email and Chat guidelines**:

Respect the privacy of other class members

* Any inappropriate use of the email, chat or discussion group will result in removal from the class and forfeiture of tuition
* Messages are expected to be professional and constructive
* Remember, the tenor of your communication may be difficult to properly assess since facial expressions cannot be observed. Choose your words wisely when strong opinions or feelings are being expressed, i.e. don’t be insulting, inflammatory, provocative, or …
* Be respectful of other people’s opinions and ideas
* Use normal fonts

**Email:**

* Use the email associated with the class and not a private email address or forward your class email to your private account
* Always provide a relevant and descriptive subject

**Grading:**

Grades will be based on projects, readings, quizzes and exams.

**Final grade assignment scale**:

|  |  |
| --- | --- |
| **Points** | **Grade** |
| **90+** | **A** |
| **80-89** | **B** |
| **70-79** | **C** |
| **60-69** | **D** |
| **<60** | **F** |

**Academic Honesty Policy**

The University of Arkansas has an Academic Honesty Policy that can be found at the following URL: <http://www.uark.edu/campus-resources/rlee/honesty.html>. You should read this policy. Most students fully understand direct cheating but sometimes do not fully grasp what plagiarism is. In a nutshell, plagiarism is presenting other peoples work or concepts as one’s own. Certainty, other works and concepts can be used but must be referenced. We as faculty members hold the responsibility for maintaining academic honesty and will certainly do so—you do not want to be the test case.

**Tentative Schedule:**

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| --- | --- | --- |
| **Class Meeting** | **Topic** | **Assignments** |
| Sept. 1 | z/OS – Part I; z/OS Part II  (ISPF/RDz) | in class assignment; read article(s) for next class |
| Sept. 8 | E-week | e-week assignment |
| September 15 | Running a COBOL program; Viewing results  JCL/VSAM | class assignments |
| Sept. 22 | E-week | e-week assignment |
| September 29 | JCL / more VSAM -- utilities | class assignments |
| Oct. 6 | E-week | e-week assignment |
| October 13 | Complete z/OS & RDz environment—**Exam I** |  |
| Oct. 20 | E-week | class assignments |
| October 27 | Linux Basics—Scripts I and Scripts | class assignments |
| November 3 | E-week | e-week assignment |
| November 10 | PHP—Creating a Web application with LAMP | assignment given; due 11/17 |
| Nov. 17 | E-week | class assignments |
| November 24 | Thanksgiving Week |  |
| Dec. 1 | Web Project—Linux features on a mainframe  Sys. Mgmt, Memory and Disk Mgmt, Cloning, Review for final | Project Due |
| Dec. 15 | Final Exam in class-normal class time |  |