Enterprise Architecture
MET CS 783
On Campus
Boston University
Metropolitan College

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Office hours: by appointment

Wednesdays, 5/24 – 8/09, 6:00 – 9:30PM
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Course Description

This course builds upon the strong technical foundation of an MSCIS curriculum; by providing students with the CIO-level management perspective and skills of enterprise architecture, in the context of the technologies that implement those architectures. Our Ross, Weil, and Robertson text provides much of the management content of the course, and the online content provides both management and technical skills. Students learn that enterprise architectures are best developed incrementally, by system development projects that are architected to conform to and become part of the overall enterprise architecture. The content therefore includes many real enterprise system development case studies, showing how these enterprise systems contributed to and helped define the overall enterprise architecture. The course also includes a number of realistic enterprise architecture assignments and an incremental term project with components spanning the course to provide students with hands-on enterprise architecture experience. The course provides students with the understanding and skills needed to define and implement successful enterprise architectures that provide real value to organizations, such as substantially reducing IT costs while improving performance, agility, and alignment of information technology to business goals.

Course Learning Objectives

By successfully completing this course, you will be able to:

- Assess and document an organization's current enterprise architecture
- Assess and document an enterprise's core business model
- Execute successful enterprise architecture activities in your organizations
- Utilize different models and representations to influence acceptance and continuity of architecture
- Guide EA activities so that EA provides the greatest benefit to your organization, while avoiding the traps and potential harm from poorly managed and executed EA programs

Course Outline

- **Calendar Tool** - You can see many due dates in the calendar tool. You may add your own events there as well. However, please be aware that you may not find all of the important dates

for the course listed there. You will stay current by checking announcements, discussions, and emails in the course.

- **Readings** - Each module has both textbook readings and online lectures. Your professor may suggest additional readings during the running of the course.
- **Assignments and deliverables**
    - All assignments and quizzes are due as noted on the syllabus calendar.
        - **Assignment** - Assignments can be accessed from the Assignments menu.
        - **Assessments/Quizzes** - Quizzes are also listed in the course calendar and accessed from the Assessments menu.
    - Extensions: Students may negotiate with their professor regarding late submission. *The instructor will not accept an extension* without discussing it with him prior to the due date/time. Any unauthorized delay in deliverables will be punished by 50% reduction in the assignment grade.
    - The Term Project is the critical deliverable for the course. A complete Term Project submission includes both a written report and a presentation.

Module 0 - Module Review of System Architecture from CS 682

This module is a quick review of the system architecture content from CS 682 with the purpose of helping students refresh their knowledge to prepare for the enterprise architecture material in this course. It will not be discussed in the class.

Module 1 – Introduction to Enterprise Architecture

- Lecture 1 - Introduction to Enterprise Architecture
    - Multimedia Object on the Layers of Enterprise Architecture
- Lecture 2 - The Operating Model & Alignment with the Business
- History of System Architecture (review)

Module 2 – EA Artifacts, Governance, and Legacy System Migration

- Lecture 3 - EA Frameworks, The Core Diagram, and Architecture Maturity Levels
    - Includes Multimedia Object on Good Start Genetics' EA Core Diagram
- Lecture 4 - Governance, Part I: Basics on IT Governance, Development Process, Security & Compliance
- Lecture 5 - Migrating Legacy Systems – A Key EA Challenge

Module 3 – The IT Engagement Model and Some Key EA Technologies

- Lecture 6 - IT Engagement Model
- Lecture 7 - Looking at Some EA Implementation Technologies – SOA and RESTful
- Lecture 8 - Virtualization, SaaS/PaaS/IaaS/etc. and Cloud Basics

Module 4 – System Integration and Linking Technologies

- Lecture 9 - System Integration
- Lecture 10 - Data Warehouses as an Integration Strategy
- Lecture 11 - ERP Systems – The Good, The Bad, and The Ugly
- Additional material will cover Big Data analytics, Hadoop, alternate database organizations like triple-stores

Module 5 – IT Governance, Part 2 and Deployment Choices for Your EA

- Lecture 12 - Governance, Part 2: Vendor Management, Outsourcing, and Service Level Agreements (SLAs)
- Lecture 13 - Strategic Deployment Choices – Data Center, Hosted, Cloud, or Hybrid?
- Additional material will cover Chaos Engineering, blockchain and other disruptive technologies and approaches

Module 6 – Additional Deployment and Governance Topics, and Final Lecture

- Lecture 14 - Other Deployment Topics – Scaling, Monitoring, and Fault Tolerance
- Lecture 15 - Disaster Recovery
- Lecture 16 - The Final Lecture – "So You Want to Be a CIO?"

Module 7 – Prepare for and take the final exam

You will prepare for and take the proctored final exam.

Preliminary Expectations:
All students have successfully completed the equivalent of MET CS 682, Information Systems Analysis and Design or have strategic IT experience.

Gradables:

Assignments (5)	– 15%
Quizzes (4)	– 20%
EA Term Project Deliverables	– 15%
EA Term Project	– 10%
EA Term Project Presentation	– 20%
Final Exam	– 20%

Materials and Resources (required):

Ross, J. W., Weill, P., & Robertson, D. C. (2006). ***Enterprise architecture as strategy.***
Harvard Business Press.

ISBN-13: 9781591398394
ISBN-10: 1591398398

This textbook can be purchased from Barnes and Noble at Boston University.

This textbook will be referred to in syllabus as "EAAS".

Richards, M. (2015). ***Software Architecture Patterns.***
O'Reilly Media Inc.

ISBN-13: 9781491924242

This book is a free PDF download from the O'Reilly website.

This textbook will be referred to in syllabus as "Richards".

Class Policies

Please note: All rules and regulations of Boston University Metropolitan College regarding academic integrity apply to the conduct of this course.

1) **Attendance & Absences** –
    a. All students expected participate in all classes. All classes.
    b. In the case of inability to participate the student must inform professor in advance by email.
2) **Assignment Completion & Late Work** –
    a. The course has 5 assignments and 1 course project with 6 deliverables. All assignments and the project deliverables must be submitted by midnight time of the provided submission date.
    b. Any late work will be grated with automatic 50 point reduction.
3) **Term Project length**: Even with a relatively small class, reviewing final term projects take significant time – at least 3 hours per project. **Therefore, there is a page limit of 25 pages, with font size 11 the smallest font accepted.** Instructor will stop grading after 25 pages. The page limit does not include the slides for your in-class presentation.
4) **In-class Term Project presentation**: It is fun and interesting to see what other students have done for their projects; the workshops and in-class presentations are often the highlights of the course. You will have up to 15 minutes to present your project and answer questions from the class.
5) **Plagiarism policy**: University plagiarism rules are strictly enforced. With the exception of collaborative workshop sessions, all assignments, quizzes, and exams are assumed to be the original work of the student whose name is on the assignment. The instructor uses *TurnItIn* to assess whether information has been copied directly from sources without proper citation. **Discovery of plagiarism will result in a zero for the assignment.**
6) **Citations**: In accord with the above rule on plagiarism, any directly quoted or paraphrased material must have proper citation. Any assignment must have a standard bibliography in MLA citation format. **Failure to include a bibliography will result in a 50% point loss on the assignment.** There are countless websites to consult on MLA format -- http://www.studyguide.org/MLAdocumentation.htm provides one example.
7) **Quizzes**: Quizzes will be held online and will continue for 90 minutes. They are open book and open notes.
8) **Exam**: The final exam will be held on August 9th.

#	Date	Topic	Reading Due	Assignment Due
1	May 24	Introduction to Enterprise Architecture Introduction to Term Project	EAAS: Preface, pp. vii - xi EAAS: Chapter 1 Lecture 1	*(Review Homework and Term Project deliverables assigned)*
2	May 31	The Operating Models	EAAS: Chapter 2 Lecture 2	Term Project Deliverable #1 due (1 page proposal)
3	June 7	Enterprise Architecture The Stages of EA Maturity Migrating Legacy Systems	EAAS: Chapter 3 and 4 Lecture 3, 4 and 5	Assignment #1 due Term Project Deliverable #2 due (Plan) Quiz #1
7	June 14	Calculating EA ROI Workshop #1 (Core diagram)		Assignment #2 due Term Project Deliverable #3 (Business objectives) Quiz #2

4	June 21	Major EA Standards		Term Project Deliverable #4 due (Core diagram)
5	June 28	IT Engagement Model	EAAS: Chapter 5 Richards – introduction and Chapters 1 & 2 Lecture 6	Term Project Deliverable #5 due (ROI)
6	July 5	SOA and Web Services Virtualization and Containers (Docker)	Lecture 7 Lecture 8	
9	July 12	Linking Technologies and System Integration: From Messaging to the Enterprise Service Bus;	EAAS: Chapter 6 Richards – introduction and Chapters 3 & 4 Lecture 9 and 10	Quiz #3 Assignment #3 due
10	July 19	ERP Systems Workshop #2	Lecture 11	Assignment #4 due Term Project Deliverable #6 (Subsystems and Linkages)
8	July 26	Outsourcing Deployment Choices: Server Rooms, and/or the Cloud	EAAS: Chapter 8 Lecture 12, 13, 14 and 15	Quiz #4 Assignment #5 due Term Project Deliverable #7 due (Evaluate ERP solutions)
11	August 2	Requirements to Enterprise Architect Term Project Presentation	EAAS: Chapter 9 Lecture 16	Final Term Project due Quiz #5
12	August 9	FINAL EXAM		

Professor Bio:
Dr. Faktorovich is a professional software architect and developer with more than 20 years of experience. He designed and developed applications for several financial companies, SUN Microsystem, CA, and currently EMC.