



# Digital Systems

---

1.1 Introduction to MIS

**FOX**  
**MIS**

# Welcome!

---

Fall 2020

**FOX**  
**MIS**

***“Tell me and I forget.  
Teach me and I remember.  
Involve me and I learn.”***

---

- Benjamin Franklin

# Managing Expectations

- **This class is unique!**
- **We will work through challenges together...plan on it!**
- **You will find the class engaging and fun!**
- **You will acquire knowledge and skills that you will use in future classes and your career!!!**

# Course Highlights

- **Systems Analysis**
- **Process Mapping (Modeling with swim lanes & entity relationship diagrams)**
- **Digital Product Management**
- **Information Systems CRM & ERP, Data Analytics & SCM**
- **Platforms & Digital Business models, including API's**
- **Cyber security and the Enterprise plus AI**
- **Programming including: JavaScript, HTML & CSS**

# Course Objectives

- **Explore the systems which organizations use to create their digital products**
- **Explore the platforms which these digital systems are built upon**
- **Explore the API ecosystems by which systems extend their reach and capability.**
- **Discuss cyber security including risks & responses surrounding digital products**
- **Introduction to the creation of software**
- **Learning the basics of programming in JavaScript**

# Graded Components

Component	Percentage
In-Class Activities & Worksheets (approximately 23) * must be present in class to earn credit – no exceptions!	10%
Learn IT! And Coding Assignments ** no late assignments accepted – no exceptions!	25%
Exam #1 (50 minutes)	20%
Exam #2 (50 minutes)	20%
Exam #3 (50 minutes – held during finals week)	20%
Honors Technology Research Project	5%

\*In-Class activities will be submitted while in class.

\*\*Completed assignments will not be returned in class. Grades will be posted to the gradebook. Please note that two weeks after a grade is posted, the grade will be considered “final.”

# Readings & Videos – Part 1

- **No required texts the first 2/3's of the semester!**

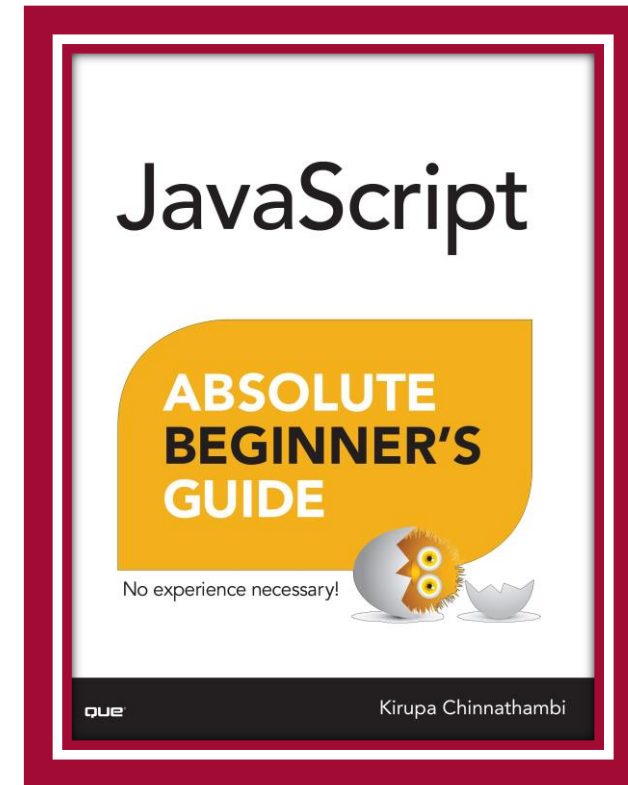


- **Engaging collection**
- **Current content**
- **Available for Free!!!**

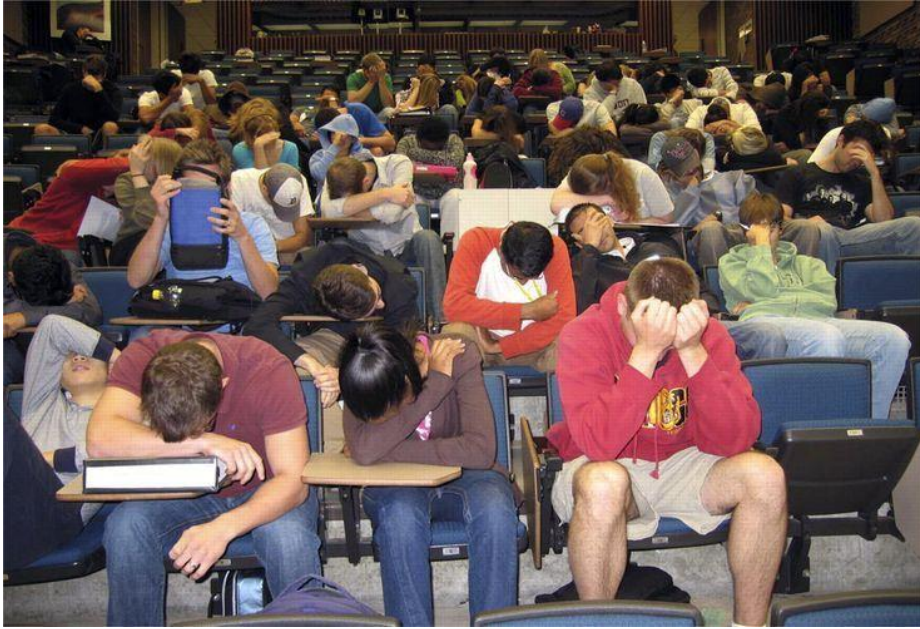


# Readings & Videos – Part 2

- **JavaScript**
  - Create simple JavaScript programs
  - Prompt users for input
  - Utilize loops
  - Process Information



# Lecture vs. Activities



Source: <https://www.theodysseyonline.com/11-things-college-lecture-hall>

- **3 Hours of zzzzzzzzz's**



- **1 Hour Discussion**
- **2 Hours of Activity**

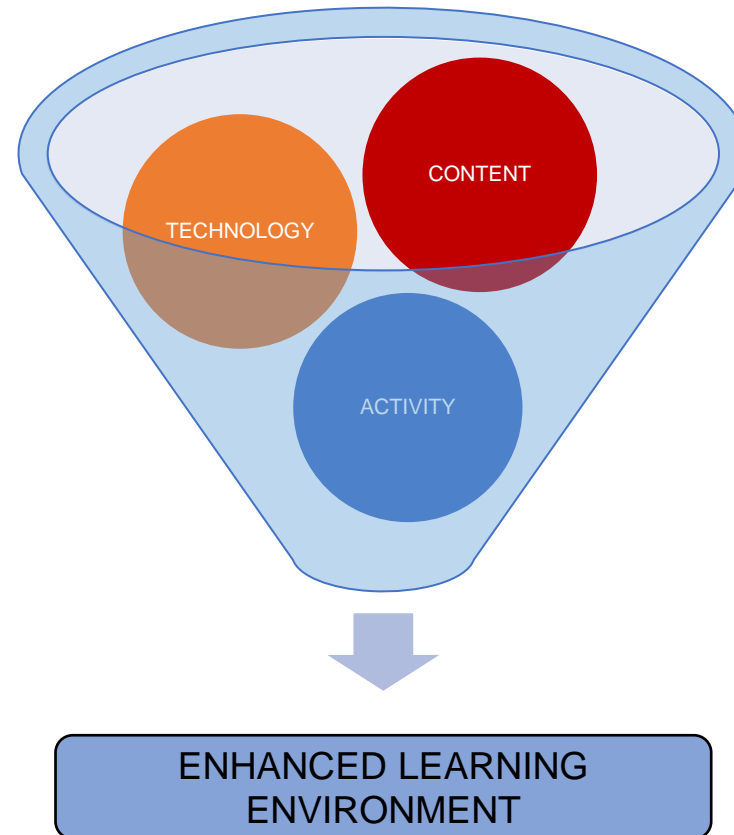
# Active Learning Components

TECHNOLOGY

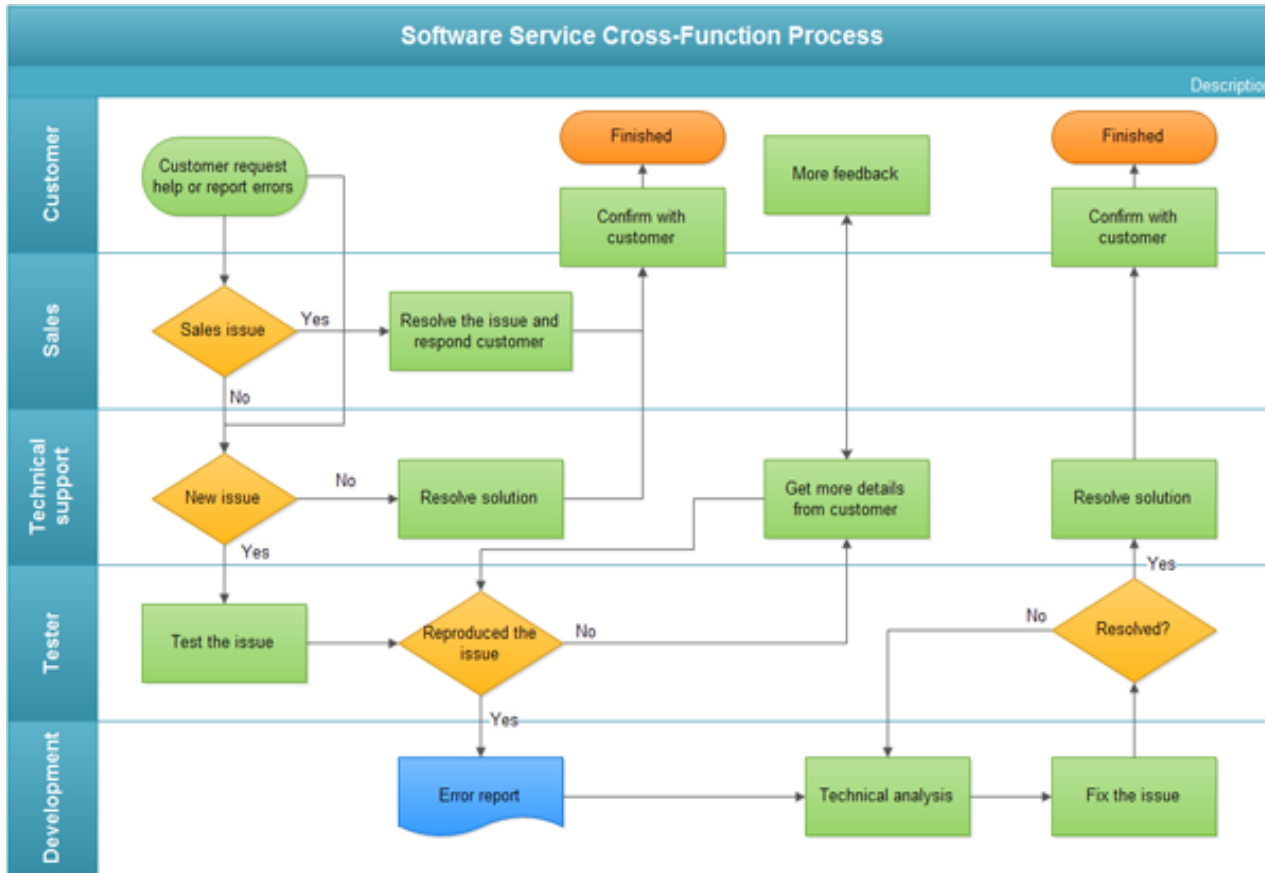
CONTENT

ACTIVITY

# The Active Learning Funnel

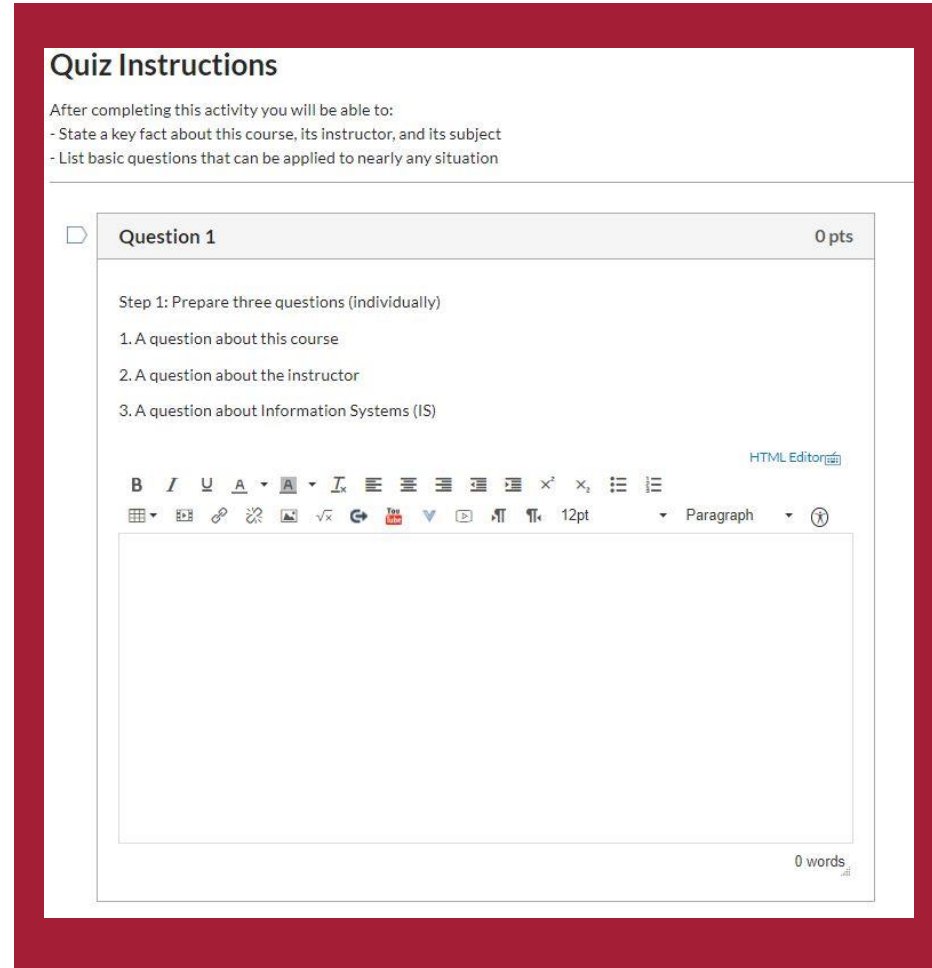


# The In-class Activity



- Process Diagrams
  - Swim lane diagram
- Real life scenarios
- Knowledge Application
- Problem Solve
- Synthesize Solutions

# The In-class Activity – Canvas



The screenshot shows a Canvas quiz question editor. At the top, it says "Quiz Instructions" and lists two objectives: "State a key fact about this course, its instructor, and its subject" and "List basic questions that can be applied to nearly any situation". Below this is "Question 1" with a score of "0 pts". The question text reads: "Step 1: Prepare three questions (individually)" followed by a numbered list: "1. A question about this course", "2. A question about the instructor", and "3. A question about Information Systems (IS)". There is a rich text editor toolbar with various icons for bold, italic, underline, text color, background color, bulleted list, numbered list, link, unlink, insert link, insert video, insert image, insert table, and font size (set to 12pt). A "Paragraph" dropdown menu is also visible. At the bottom right of the editor, it says "0 words".

- Reinforce assigned materials
  - Readings
  - Videos
  - Lecture
- Exam Preparation
- Work in teams
- You keep your work

## Not Just Another Intro Class!

- Accounting
- Business Management
- Entrepreneurship & Innovation Management
- Financial Planning
- International Business Administration
- Marketing
- Risk, Insurance & Healthcare Management
- Supply Chain Management
- Actuarial Science
- Economics
- Finance
- Human Resources Management
- Legal Studies in Business
- Management Information Systems
- Real Estate
- Statistical Science and Data Analytics



ASSOCIATION FOR  
INFORMATION SYSTEMS

# Information Systems Job Index

*Careers in Information Systems*



Fox School of Business  
TEMPLE UNIVERSITY®



Read the full report at [isjobindex.com](https://www.isjobindex.com)



Based on 1420 recent graduates from 43 universities across the U.S.

## The 2019 IS Job Market is Steady



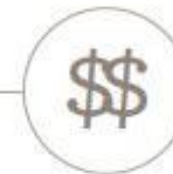
### Job Placement Rate

	At Graduation	6-Months after Graduation
Bachelor's:	70%	69%
Master's:	47%	81%



### Confidence in Job Market

Bachelor's:	64%
Master's:	55%



### Average Salary

Bachelor's:	\$65,314
Master's:	\$84,113

## IS Students are Happy About Their Future Jobs



### Satisfaction & Enthusiasm about Job Offer

Bachelor's:	83%
Master's:	70%

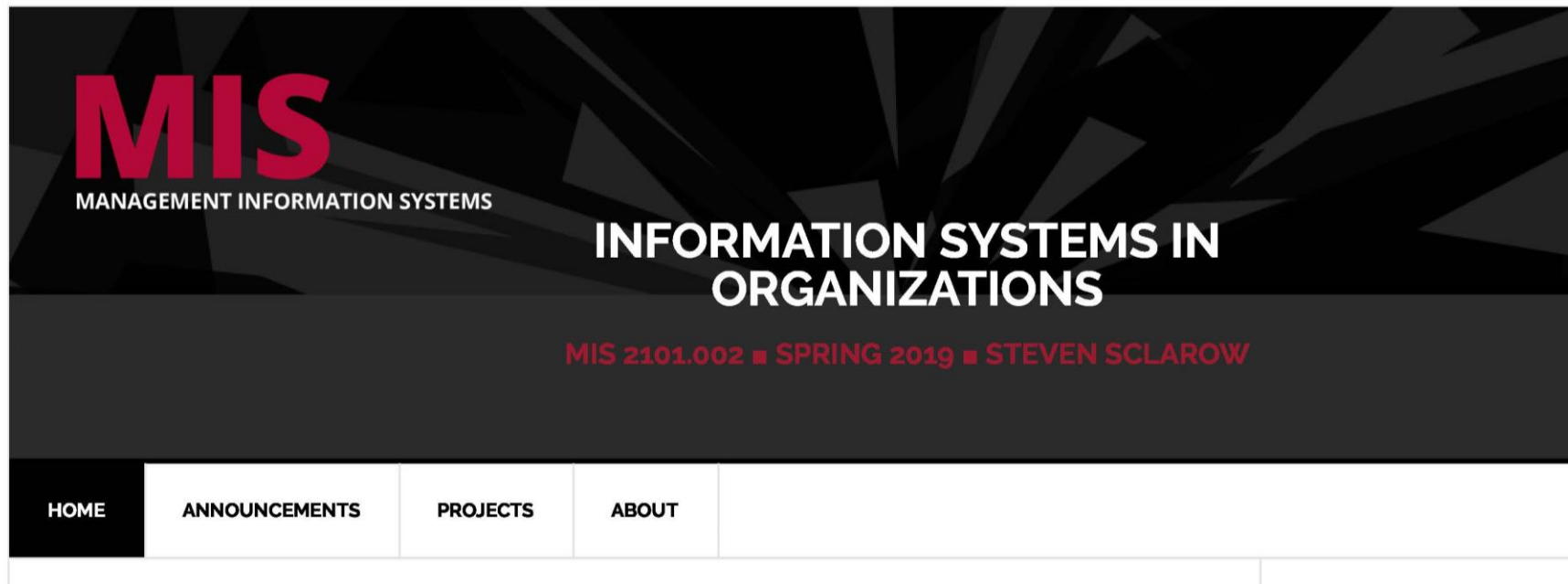


### Offer from Appealing Organization

Bachelor's:	89%
Master's:	75%

# Class Site Review

- **No Blackboard or Canvas**
  - <https://community.mis.temple.edu/>



# ROADMAP

START

## Week 1:

### Introduction & Systems Analysis

- Course Description
- Systems Thinking

## Week 2:

### Introduction to Process Mapping

- Systems & Processes
- Swim Lane Diagrams

Assignment #01

## Week 3:

### Digital Product Management

- Max Labs 1a & 1b
- Entity Relationship Diagrams (ERD)

Assignment #02

## Week 4:

### Introduction to Data Modeling

- ERD Diagrams
- Learn IT Kickoff

Assignment #03

## Week 5:

### Exam #1 & Information Systems – Part I & II

- CRM & ERP

\*Exam – check calendar

## Week 9:

### Exam #2 & JavaScript Unit #1 - Part I & II

- Hello World, Variables
- \* Exam - check calendar

Assignment #07

## Week 8:

### Cybersecurity & AI – Part I & II

- Protection Protocols
- Artificial Intelligence

Assignment #06

## Week 7:

### Platforms & Digital Business Models – Part I & II

- Platforms & Digital Models
- APIs

Assignment #05

## Week 6:

### Information Systems – Part III & IV

- Data Analytics
- SCM
- Max Labs 2a2b

Assignment #04

## Week 10:

### JavaScript Unit #2 Functions

- Operator types
- Strings

Assignment #08

## Week 11:

### JavaScript Unit #3 Logical Operators & Conditional Logic

- Logical Operators
- Conditional Types

## Week 12:

### JavaScript Unit #4 Loops

- Intro to Loops
- While and Do

## Week 13:

### JavaScript Unit #4 Working with Loops

- Writing the code

## Week 14:

### HTML & CSS Unit

- HTML basics
- CSS basics
- Course Reflection

Assignments #'s 9 & 10

FINISH



# Digital Systems

---

## 1.2 What are Systems?

**FOX**  
**MIS**

# ROADMAP

START

## Week 1:

### Introduction & Systems Analysis

- Course Description
- Systems Thinking

## Week 2:

### Introduction to Process Mapping

- Systems & Processes
- Swim Lane Diagrams

Assignment #01

## Week 3:

### Digital Product Management

- Max Labs 1a & 1b
- Entity Relationship Diagrams (ERD)

Assignment #02

## Week 4:

### Introduction to Data Modeling

- ERD Diagrams
- Learn IT Kickoff

Assignment #03

## Week 5:

### Exam #1 & Information Systems – Part I & II

- CRM & ERP

\*Exam – check calendar

## Week 9:

### Exam #2 & JavaScript Unit #1 - Part I & II

- Hello World, Variables
- \* Exam - check calendar

Assignment #07

## Week 8:

### Cybersecurity & AI – Part I & II

- Protection Protocols
- Artificial Intelligence

Assignment #06

## Week 7:

### Platforms & Digital Business Models – Part I & II

- Platforms & Digital Models
- APIs

Assignment #05

## Week 6:

### Information Systems – Part III & IV

- Data Analytics
- SCM
- Max Labs 2a2b

Assignment #04

## Week 10:

### JavaScript Unit #2 Functions

- Operator types
- Strings

Assignment #08

## Week 11:

### JavaScript Unit #3 Logical Operators & Conditional Logic

- Logical Operators
- Conditional Types

## Week 12:

### JavaScript Unit #4 Loops

- Intro to Loops
- While and Do

## Week 13:

### JavaScript Unit #4 Working with Loops

- Writing the code

## Week 14:

### HTML & CSS Unit

- HTML basics
- CSS basics
- Course Reflection

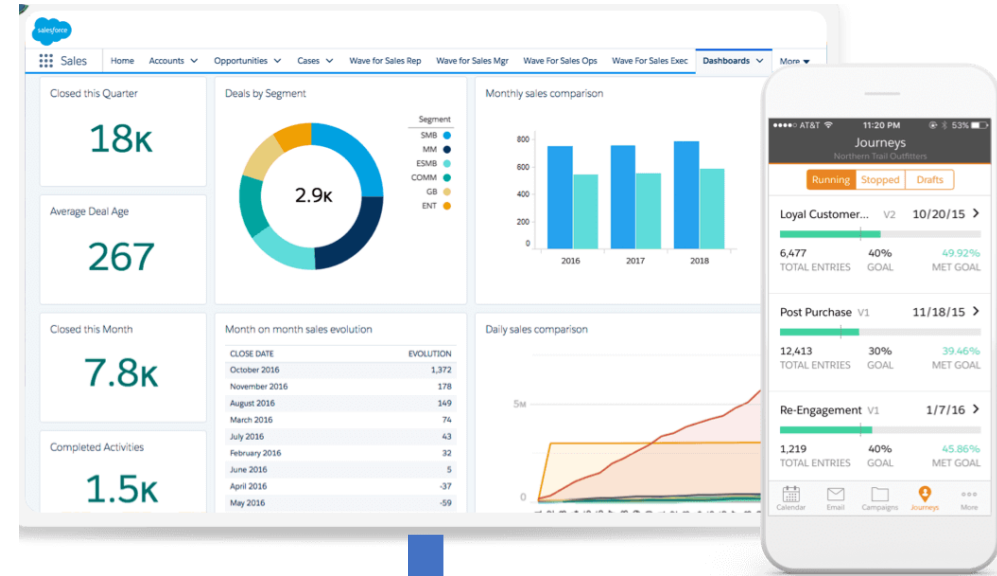
Assignments #'s 9 & 10

FINISH

# What is MIS?

Using Information Technology to solve business problems.

- MIS is not Computer Science
- It's about business where we train people to do what?
- Use technology to solve day-to-day business problems`



Sources: [https://c1.sfdcstatic.com/content/dam/web/en\\_us/www/images/products/what-is-salesforce/whatis-jumbo-astro-product.png](https://c1.sfdcstatic.com/content/dam/web/en_us/www/images/products/what-is-salesforce/whatis-jumbo-astro-product.png)

[https://www.kindpng.com/picc/m/568-5683178\\_real-cash-stack-100-dollar-bill-hd-png.png](https://www.kindpng.com/picc/m/568-5683178_real-cash-stack-100-dollar-bill-hd-png.png)

# World View – A collection of “Systems”

**Systems = people + process + technology**

- Manipulation of information = value
- Managed by MIS professionals
- Systems surround us 24/7
- Application Program Interface (API's)



Source: <https://www.aecom.com/ca/management-information-systems-mis/>



# Understanding Systems

## Buying textbooks on Amazon

- What was part of that system?
- Log-in (multiple steps)
- Search
- Shopping Cart
- Purchase (Multiple steps)
- What else???

The screenshot shows an Amazon search results page for the query "javascript absolute beginner's guide / kirupa chinnathambi". The page features a navigation bar at the top with the Amazon Prime logo, a search bar containing the query, and a "Stock up for college" banner. Below the navigation bar, there is a section for "Department" with a list of categories including "Books", "JavaScript Programming", "Introductory & Beginning Programming", "Computers & Technology", "Web Development & Design Programming", "Web Services", "Programming Languages", "Kindle Store", "JavaScript Programming", "Computer Programming", and "Web Programming". There is also an "Avg. Customer Review" section with star ratings and an "Accessibility Features" section with a checkbox for "Screen Reader Supported". The main content area displays several book listings. The first listing is "JavaScript Absolute Beginner's Guide" by Kirupa Chinnathambi, published in July 2016, with a 4.5-star rating and 29 reviews. It is available in paperback for \$19.06 (originally \$29.99) and as a Kindle for \$14.39 (originally \$23.99). The second listing is "JavaScript: Programming Basics for Absolute Beginners (Step-By-Step) (Volume 1)" by Nathan Clark, published in August 2017, with a 4.5-star rating and 33 reviews. It is available in paperback for \$16.38 and as a Kindle for \$14.39. The third listing is "Programming for Beginners: 3 Books in 1- HTML+CSS+JavaScript (Basic Fundamental Guide for Beginners)" by MG Martin, published in September 2018, with a 4.5-star rating and 13 reviews. It is available in paperback for \$24.99 and as a Kindle for \$14.39. The page also includes a "Sponsored by O'Reilly Media" section with a link to "Explore further Javascript resources".



# Understanding Systems (cont.)

## Buying lunch

- What was part of that system?
- Take the order
- Hand order to cook
- Prep to-go bag
- Order cooked (multiple steps)
- What else???



# Understanding Systems (cont.)

## Describe the Process of Ordering

- What keeps info accurate?
  - Data
- Who is involved?
  - Customer ♦ Store ♦ Warehouse Mgr. ♦ Admin ♦ UPS driver...
- How much effort?
  - None...it's automated!
  - Technology !!!

The screenshot shows an Amazon product page for JavaScript books. At the top, there's a blue banner that says "Discover the best books of 2019 so far". Below that, a section titled "Frequently bought together" displays three book covers: "JavaScript Absolute Beginner's Guide", "A Smarter Way to Learn JavaScript", and "JavaScript and JQuery: Interactive Front-End Web Development". The total price for these three books is \$67.83. Below the books, there are three checkboxes with their respective prices: "This item: JavaScript Absolute Beginner's Guide by Kirupa Chinnathambi Paperback \$19.06", "JavaScript and JQuery: Interactive Front-End Web Development by Jon Duckett Paperback \$30.81", and "A Smarter Way to Learn JavaScript. The new tech-assisted approach that requires half the effort by Mark Myers Paperback \$17.96".

Below the "Frequently bought together" section, there's a section titled "Customers who viewed this item also viewed" which displays a grid of six book covers with their titles, authors, and prices. The books are: "Eloquent JavaScript, 3rd Edition: A Modern Introduction to..." by Marijn Haverbeke (\$28.51), "A Smarter Way to Learn JavaScript" by Mark Myers (\$17.96), "JavaScript and JQuery: Interactive Front-End Web Development" by Jon Duckett (\$30.81), "Learning React: A Hands-On Guide to Building Web Applications Using React..." by Kirupa Chinnathambi (\$32.42), "Head First JavaScript Programming: A Brain-Friendly Guide" by Eric Freeman (\$35.50), and "Learn JavaScript Visually" by Ivelin Demirov (\$31.00).

At the bottom, there's a section titled "Sponsored products related to this item" which displays a grid of six book covers with their titles and authors. The books are: "MobX Quick Start Guide" by Dan Abramov (\$14.99), "Getting Started with React Native" by Ethan Holmes (\$14.99), "Learn JavaScript VISUALLY with Interactive Exercises: The Beautiful New Way to..." by Kirupa Chinnathambi (\$17.96), "Eloquent JavaScript, 3rd Edition: A Modern Introduction to..." by Marijn Haverbeke (\$28.51), "Google Apps Script for Beginners" by Serge Gabet (\$14.99), and "Web Development with ReasonML: Type-Safe, Functional Programming" by Dan Abrahams (\$34.99).

**“information system –  
*an integrated set of components for  
collecting, storing, and processing data  
and for providing information, knowledge,  
and digital products.*”**

---

- Encyclopedia Britannica

# A collection of technologies

Including:

- Hardware
- Software
- Policies
- Education tools
- API's
- Etc...



Source: <https://www.kisspng.com/png-laptop-computer-hardware-computer-repair-technicia-1180595/preview.html>



# API's Case Study: UBER

## Requesting a ride?

- Describe what happens...
  - What are these systems?
  - How do they work?



Source: <https://www.okta.com/security-blog/2019/05/how-uber-takes-advantage-of-the-api-economy/>

# Four Core Steps of Designing UX

- Problem Definition
- Documenting Business Processes
- Process Decomposition
- Data Modeling



Source: <http://www.petraware.com/consulting/>

# SDLC methodologies

- Waterfall
- Agile
- Lean
- Scrum
- DevOps



Image: <http://www.xanadutec.com/software-as-a-service.html>

**“Once a Product Manager / Technologist understands the *business problem*, they can architect a solution.”**

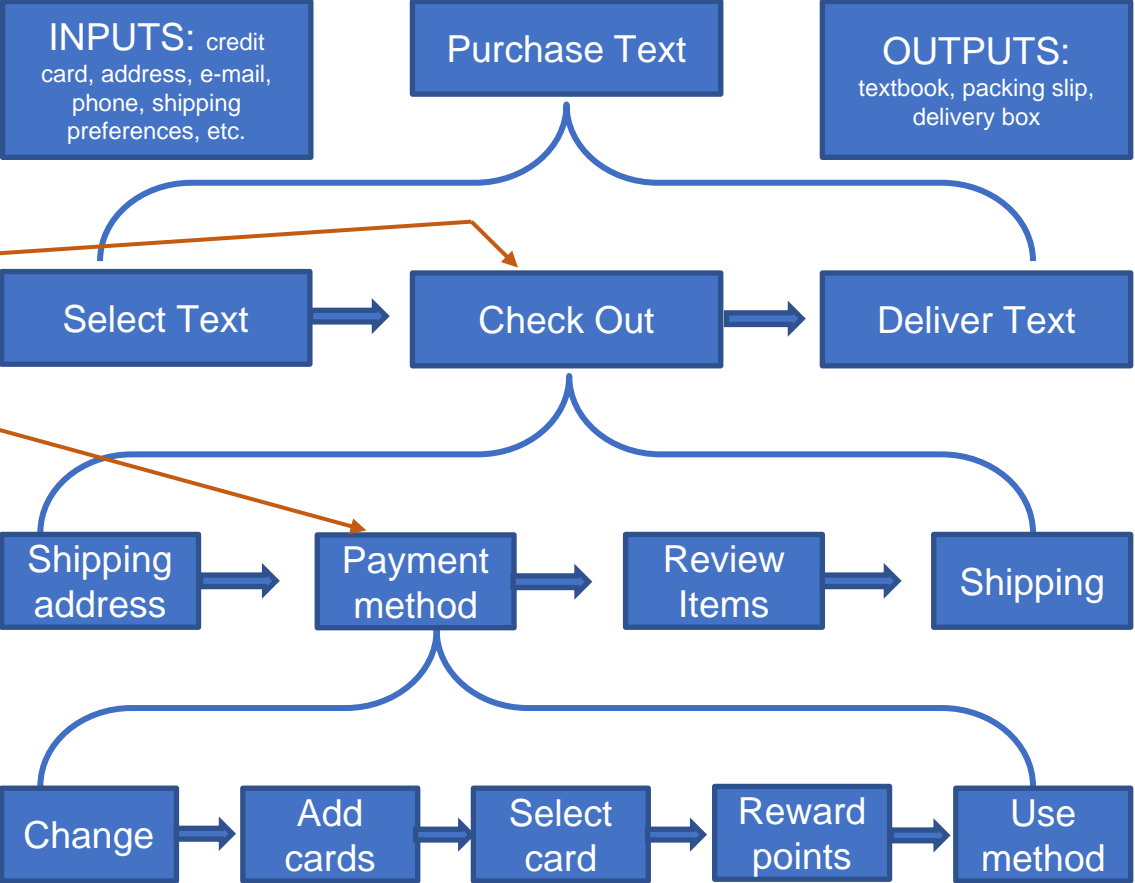
---

- Mart Doyle



# Process Decomposition

- **Single entity**
- **Subsystem**



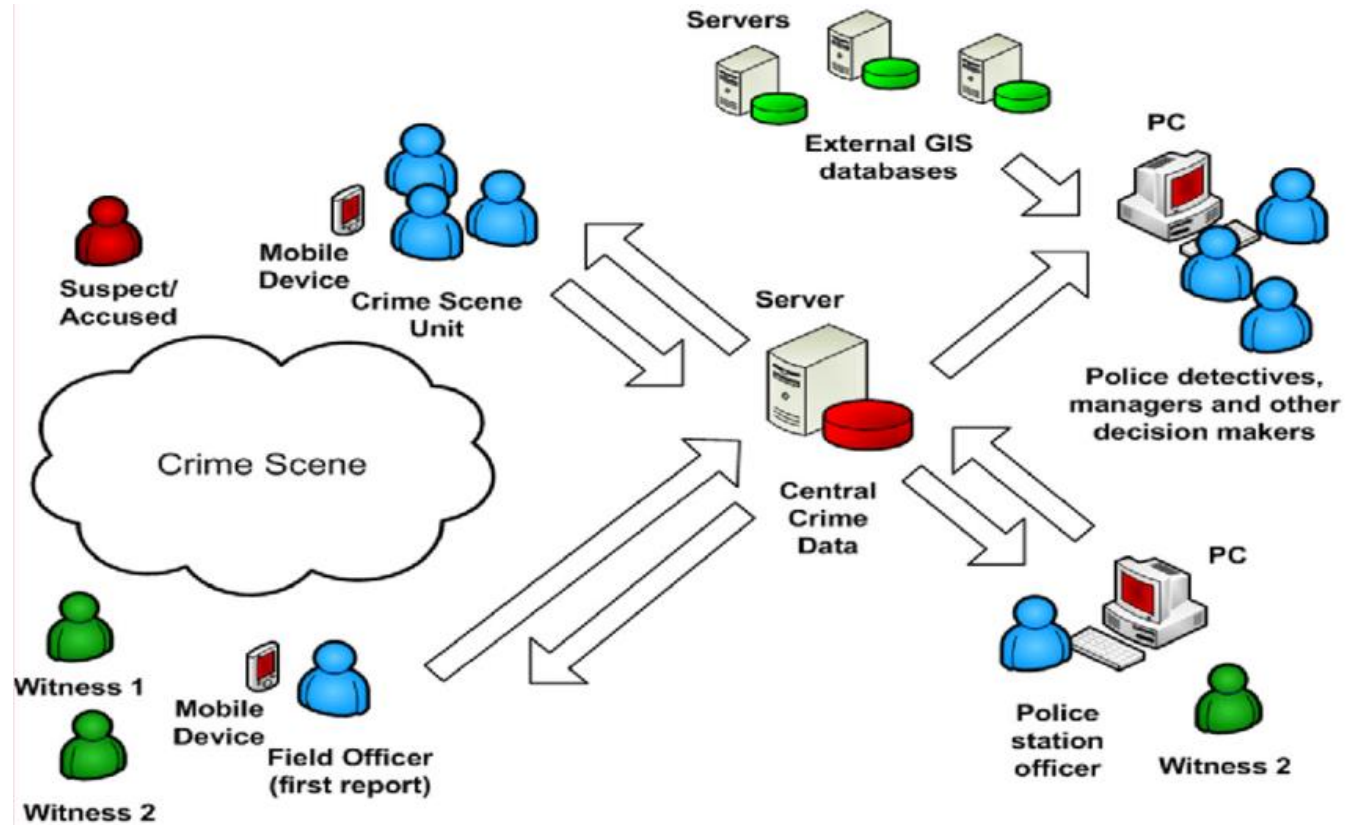
**“Systems Architecture is a response to the conceptual and practical difficulties of the description and the design of complex systems.”**

---

- Boris Golden

# Systems Architecture

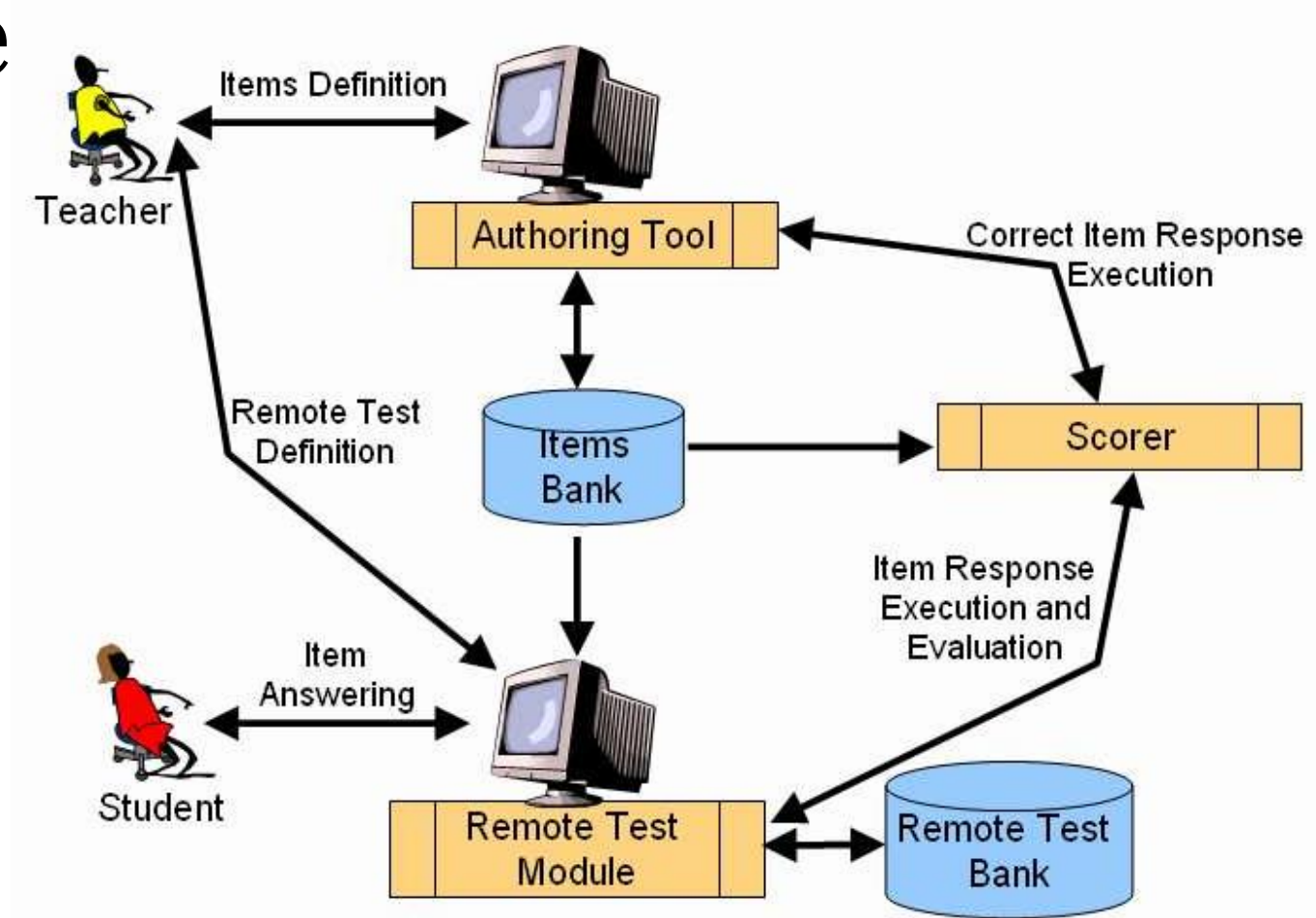
- Conceptual Diagram
- Structural components
- Identify/Solve Problems
- Existing or New
- Communication tool



Source: [https://www.researchgate.net/figure/Conceptual-System-Architecture\\_fig2\\_327987580](https://www.researchgate.net/figure/Conceptual-System-Architecture_fig2_327987580)

# Systems Architecture

- **Test question defined**
  - Authoring tool
- **Remote test created**
  - Test module
- **Student responses**
  - Test module
- **Execution & Evaluation**



Source: <http://spmarchitecture.com/systems-architecture/system-architecture-learning-environment-for-automatic-rating-64721-2/>

# More to Come

---

Prepare with Readings & Videos before our next class!!!