



# Digital Systems

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1.1 Introduction to MIS

**FOX**  
**MIS**

# Welcome!

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Fall 2023

**FOX**  
**MIS**

# Introduction to Instructor

## *Marie-Christine Martin*

- ❖ 20+ years of experience in the IT industry
- ❖ E-mail: [mcmartin@temple.edu](mailto:mcmartin@temple.edu)
- ❖ Office: Speakman 209J
- ❖ Office Hours:
  - By appointment



# My Background

- **Education**

- ❖ BS Industrial Engineering
- ❖ MBA, Finance

- **Pre-Temple**

- ❖ IBM (Canada, USA & Singapore)
- ❖ HP Global
- ❖ Oracle, USA
- ❖ Self Employed Consultant

- **Adjunct Faculty**

- ❖ Temple University, MIS

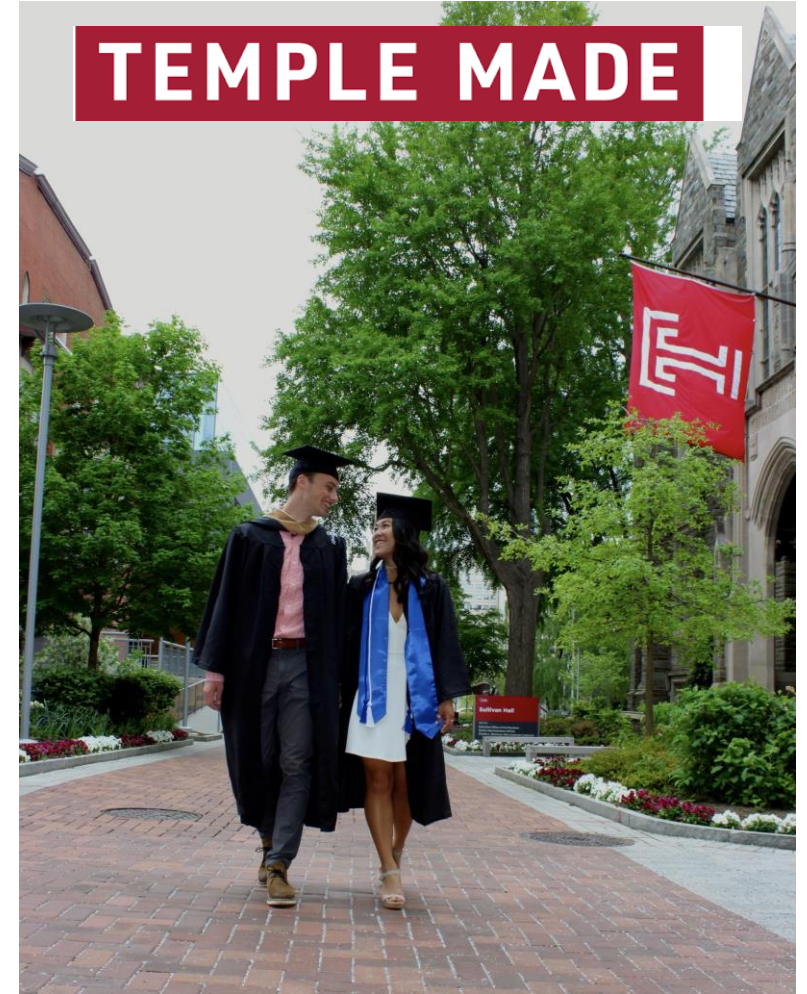
- **Full-Time Faculty Temple University**

- ❖ Undergraduate - MIS
- ❖ Graduate - FOX Business School MBA and Master In Management (MiM)
- ❖ Academic Director, ITACS BNAI Master Program, MIS
- ❖ AIS Faculty Advisor



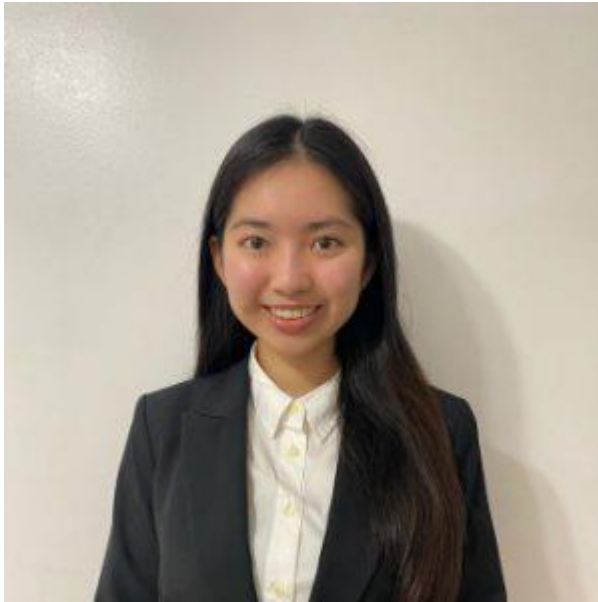


# 2023 Summer was amazing!



# Course Support: Information Technology Assistants (ITAs)

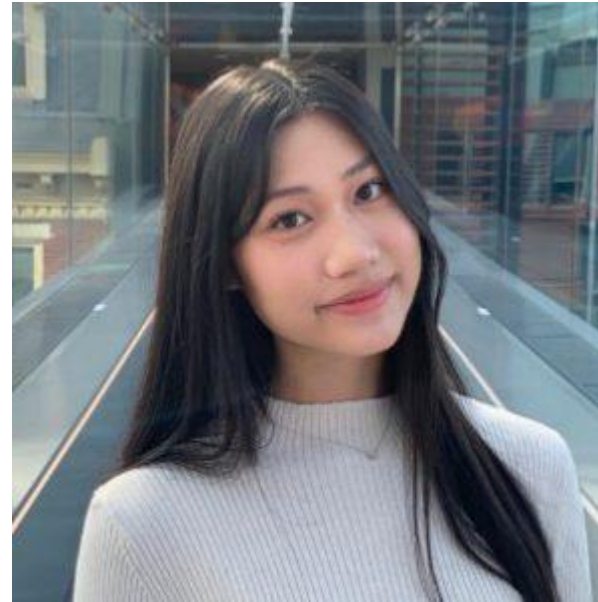
- **Kelly Liu**



Email: [kelly.liu0001@temple.edu](mailto:kelly.liu0001@temple.edu)

Office Hours: by appointment

- **Tina Le**



Email: [le.tina@temple.edu](mailto:le.tina@temple.edu)

Office Hours: by appointment

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

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- 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 17) * must be present in class to earn credit	10%
Assignments (11) ** no late assignments accepted – no exceptions!	30%
Exam #1 (50 minutes)	20%
Exam #2 (50 minutes)	20%
Exam #3 (50 minutes – held during finals week)	20%

\*In-Class activities must be submitted while in class. ( Exceptions will be provided for Covid-19 mandatory quarantines)

\*\*Please note that two weeks after a grade is posted, the grade will be considered “final.”

# Extra Credit Opportunity

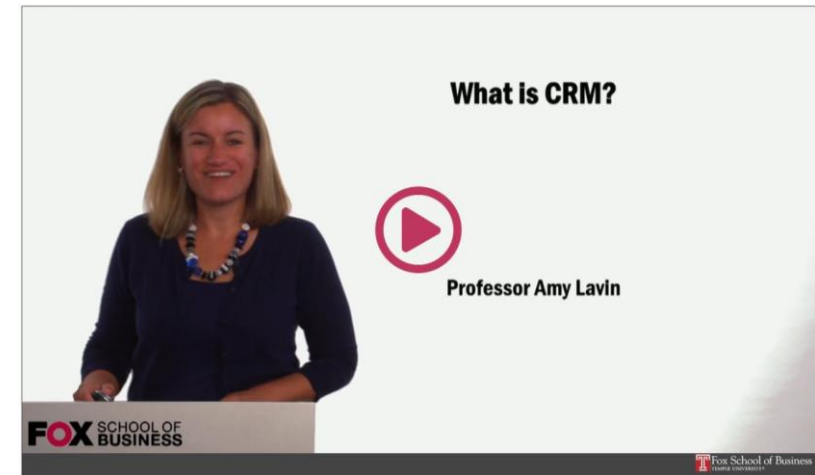
- **Onetime opportunity!!!**
- **Improve your final score**
- **Complete the Certificate Program Course**
  - **Certify your skills**
  - **Stand out from the crowd**
  - **Earn 1-point added to your final score**
- **Details will be provided on canvas after Exam #1**



**EARN  
EXTRA  
CREDIT**

# Readings & Videos – Part 1

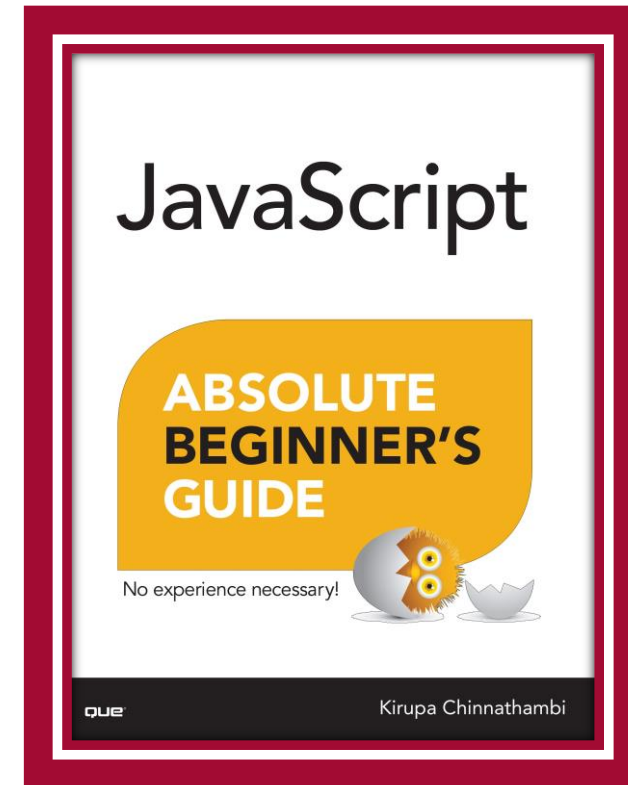
- **No required texts the first 2/3's of the semester!**



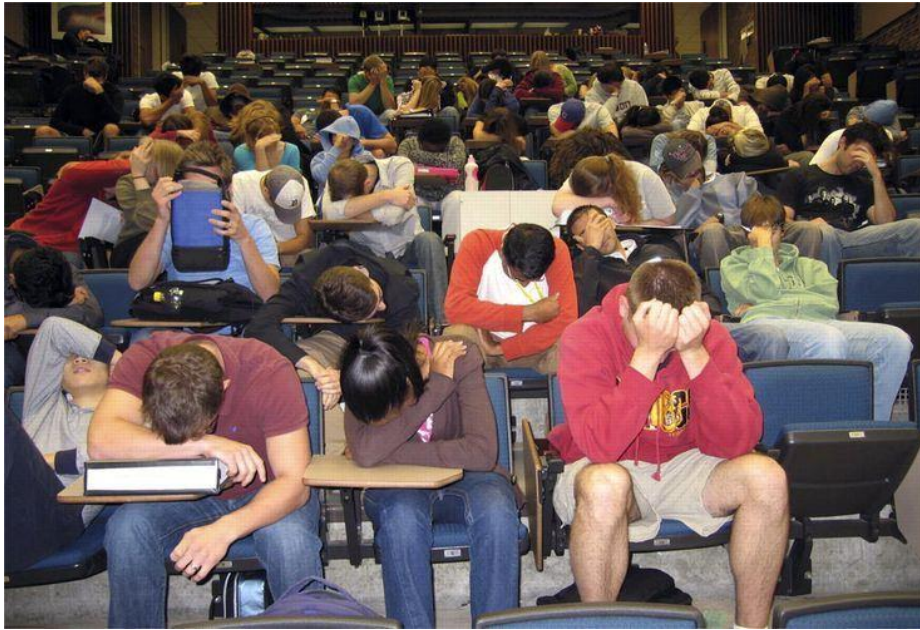
- **Engaging collection**
- **Current content**
- **Available for Free!!!**

# Readings & Videos – Part 2

- **JavaScript**
  - Create simple JavaScript programs
  - Prompt users for input
  - Utilize loops
  - Process Information
  - **JavaScript Absolute Beginner's Guide, 2nd Edition**



# 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**



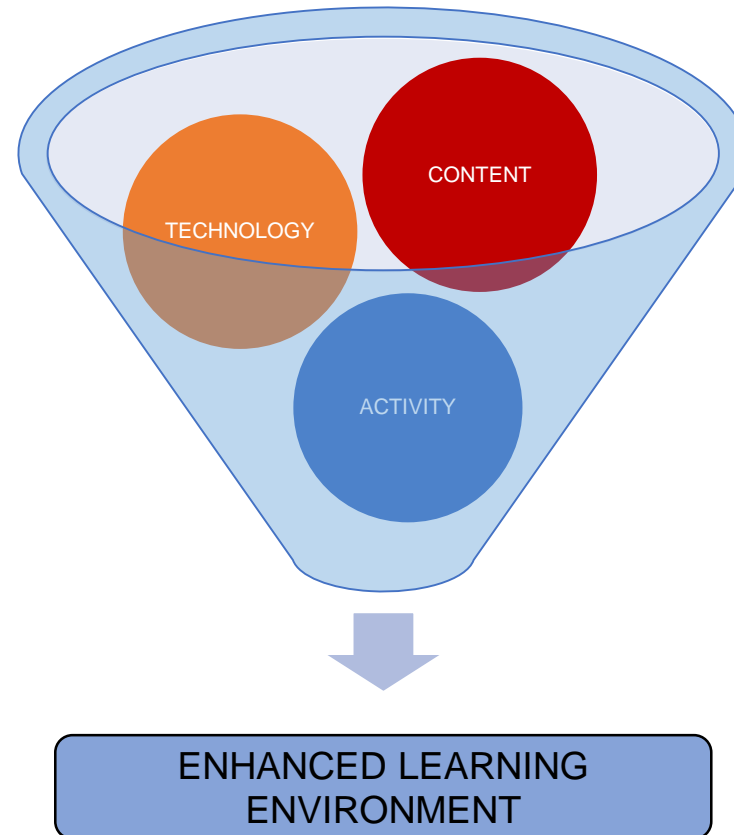
# Active Learning Components

TECHNOLOGY

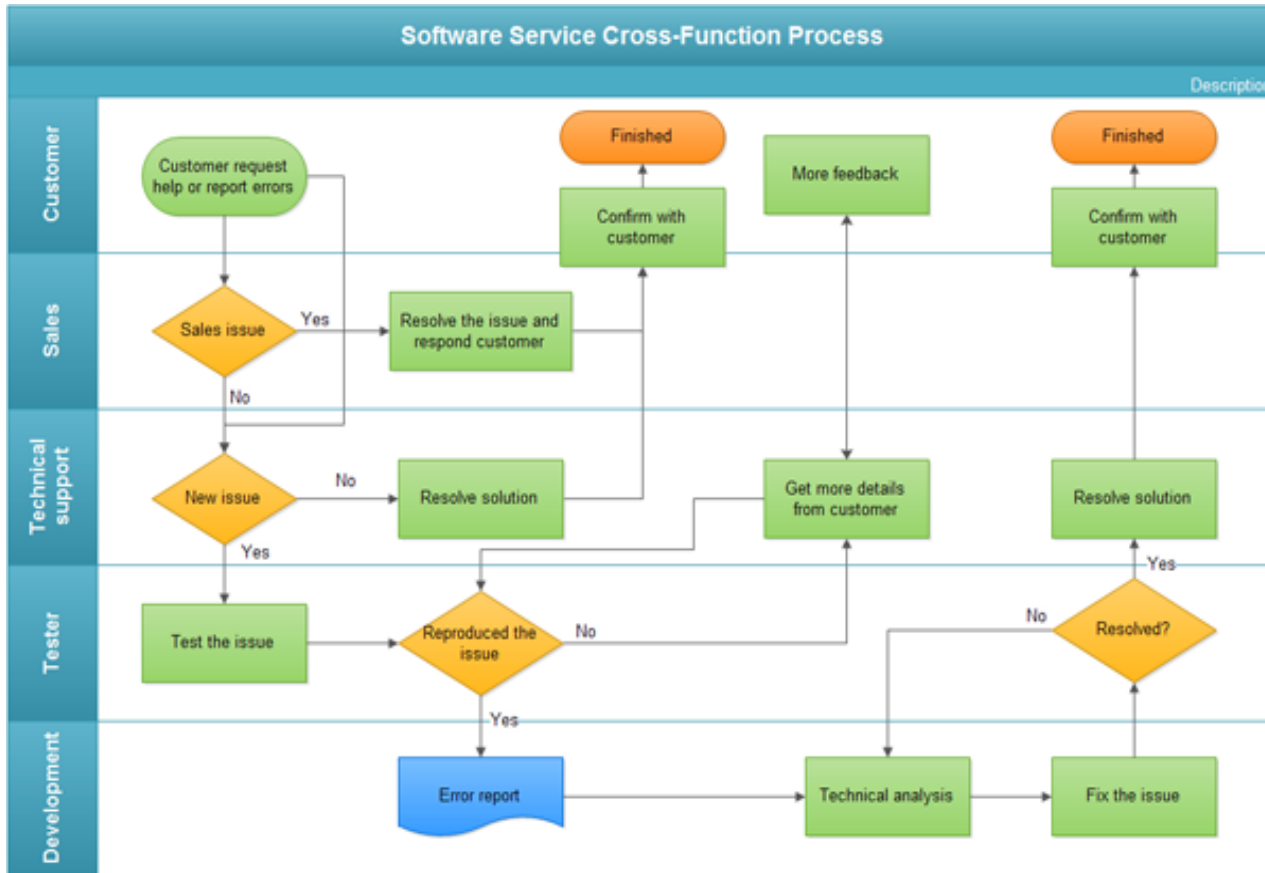
CONTENT

ACTIVITY

# The Active Learning Funnel

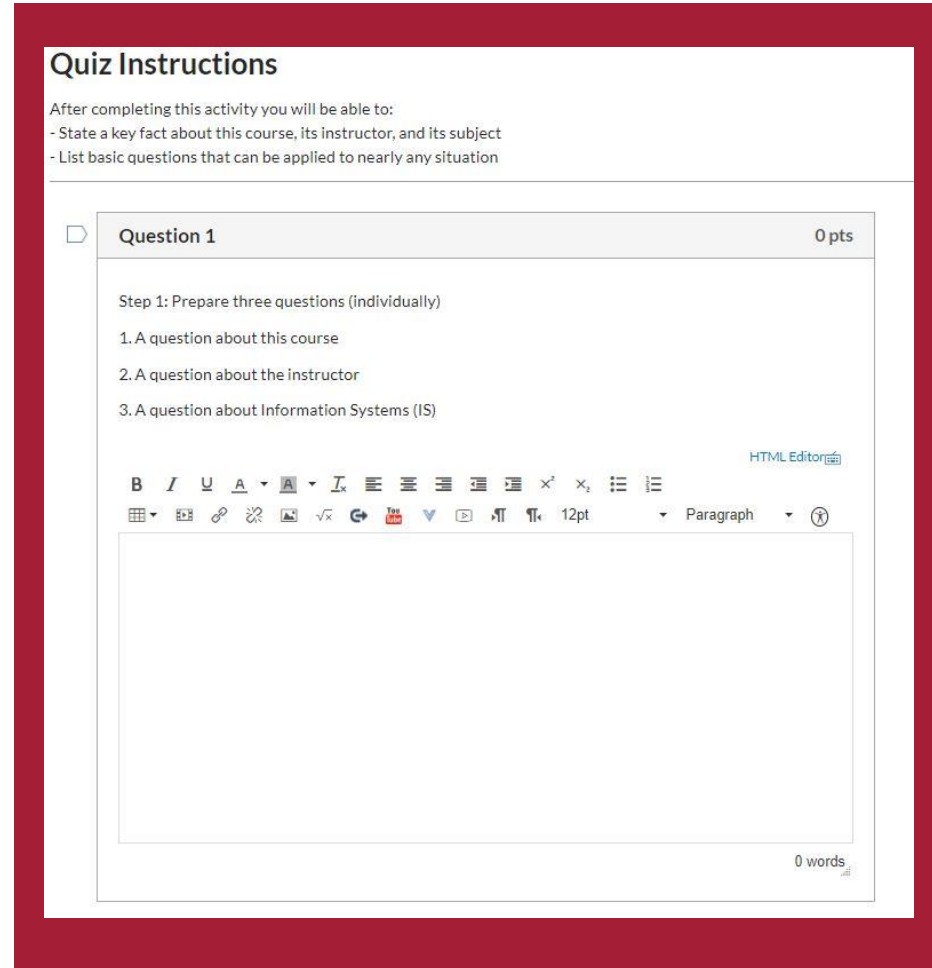


# The In-class Activity



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

# The In-class Activity – Canvas



**Quiz Instructions**

After completing this activity you will be able to:

- State a key fact about this course, its instructor, and its subject
- List basic questions that can be applied to nearly any situation

**Question 1** 0 pts

Step 1: Prepare three questions (individually)

1. A question about this course
2. A question about the instructor
3. A question about Information Systems (IS)

HTML Editor

B I U A A I [List Icons] x<sup>2</sup> x<sub>2</sub> [List Icons]

[Grid] [Table] [Link] [Image] [Video] [Code] [Link] [List] [List] 12pt Paragraph [Link]

0 words

- **Reinforce assigned materials**
  - Readings
  - Videos
  - Lecture
- **Exam Preparation**
- **Work in teams**
- **Must be present in class**



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](http://isjobindex.com)

Based on 1408 recent graduates from 36 universities across the U.S.

## THE 2022 IS JOB MARKET IS RED HOT



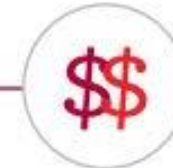
### JOB PLACEMENT RATE

	At Graduation	6-Months after Graduation
BACHELOR'S:	<b>81%</b>	<b>91%</b>
MASTER'S:	<b>65%</b>	<b>92%</b>



### CONFIDENCE IN JOB MARKET

BACHELOR'S: **64%**  
MASTER'S: **60%**



### AVERAGE SALARY

BACHELOR'S: **\$75,517**  
MASTER'S: **\$94,839**

## Entry level IS job entrants are optimistic about their careers



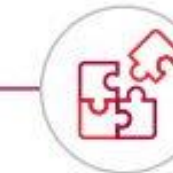
### SATISFACTION & ENTHUSIASM ABOUT JOB OFFER

BACHELOR'S: **81%**  
MASTER'S: **73%**



### OFFER FROM APPEALING ORGANIZATION

BACHELOR'S: **86%**  
MASTER'S: **82%**



### JOB IS A GOOD FIT

BACHELOR'S: **72%**  
MASTER'S: **72%**

# ROADMAP

START

## Week 1:

### Introduction & Systems Analysis

- Course Description
- Systems Thinking

Assignments #01

## Week 2:

### Digital Product Management

- Max Labs 1a & 1b
- Systems & Processes

Assignment #02

## Week 3:

### Introduction to Process Mapping

- Swim Lane Diagrams

Assignment #03

## Week 4:

### Data Modeling with Entity Relationship Diagrams

- ERD Diagrams

Assignment #04

## Week 5:

### Exam #1 & Digital Systems & Information Systems: Part I & II

- Learn IT #1
- ERP & CRM

\*Exam: check course site

Assignment #05

## Week 9:

### Exam #2 & JavaScript Unit #1

- Parts I & II
- Hello World, Variables

\*Exam: check course site

## Week 8:

### Cybersecurity & AI

- Cybersecurity
- Protection Protocols
- Artificial Intelligence

Assignment #08

## Week 7:

### Information Systems: Part IV Platforms & Digital Business Models

- SCM
- Platforms & Digital Models

Assignment #07

## Week 6:

### Information Systems: Parts II & III

- CRM
- Data Analytics

Assignment #06

## Week 10:

### JavaScript Unit #2 Functions

- Values & Variables
- Operator types
- Strings

## 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 & HTML & CSS Unit

- Writing the code
- HTML & CSS Basics

Assignment #9

## Week 14 + 1:

### HTML & CSS Unit (continued)

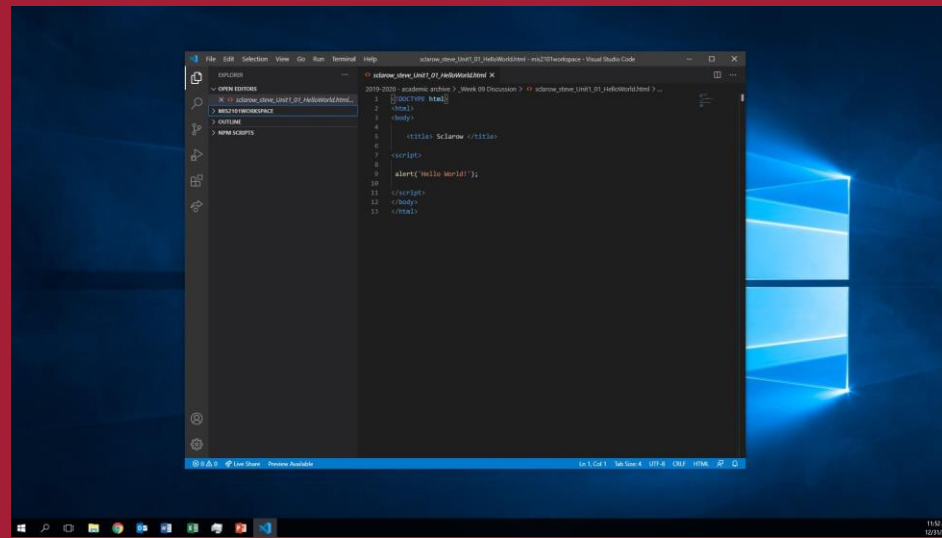
- HTML & CSS Basics
- Course Reflection

### Exam #3

Assignments #10 & #11

\*Final Exam: check course site

FINISH



# Course Intro Videos (6) Due tomorrow!

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Assignment #1

**FOX**  
**MIS**



# Business Systems Innovation Labs

## Pre-lab Pre-flight Checklist



### “Distinctive, Impressive BizTech Student Blog” (Backstory)

SJSU Business Systems student Max sets out to blog her class, stumbles into a startup adventure, and invites you to follow along.

Prep: What do you need to start?

To get the most out of this pre-lab, you need a healthy curiosity, a sense of humor and a little imagination. Focus, read for understanding, and put yourself in Max's shoes so you don't just read it—you *experience* it.

# Max Lab Pre-Flight (Lab 0)

# Assignment due next Wednesday

Assignment #2

**FOX**  
**MIS**

# Class Site Review

- <https://community.mis.temple.edu/mis2101sec004fall2023/>

The screenshot shows a web browser displaying a Canvas LMS page for the course MIS 2101 sec 004 Fall 2022. The page features a dark red header with the 'MIS' logo and 'Digital Systems' text. A navigation menu includes links for HOME, ABOUT, CANVAS, CODING FILES, DIAMOND PEER CORNER, HELPDESK, and VIDEO VAULT. The main content area is titled 'Schedule' and contains a table with columns for WEEK, DATES, TOPIC, and DUE. The table lists 'Learning Outcomes', 'Topics and Required Reading', and 'Required Viewing' for the first week (8/23-8/25). To the right, there are sections for 'ANNOUNCEMENTS' (a welcome message) and 'INSTRUCTOR' (Marie-Christine Martin, I.E., MBA, with contact information).

WEEK	DATES	TOPIC	DUE
		<b>Learning Outcomes</b> Class Introduction Define MIS Describe Systems in Organizations	
		<b>Topics and Required Reading</b> What is an Information System? Systems Architecture Systems Analysis What is Software Development Lifecycle (SDLC) Max Labs Pre-Flight	<b>1. Pre-course video Intros</b> (due 8/24 by 11:59 PM) <b>2. Max Labs Pre-flight</b> (due 8/28 by 11:59 PM)
		<b>Required Viewing</b> In-Class Activity Overview Assignments Overview	
		<b>Slide Deck</b> Discussion 1.1	



# In-Class Activity #1

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1.1a Intro to Information Systems in Organizations

**FOX**  
**MIS**



KEEP  
CALM

I SEE

YOU ON  
WEDNESDAY



# Digital Systems

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1.2 What are Systems?  
Focus this week: System Analysis

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**MIS**

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Assignment #9

## Week 14 + 1:

### HTML & CSS Unit (continued)

- HTML & CSS Basics
- Course Reflection

Exam #3

Assignments #10 & #11

\*Final Exam: check course site

FINISH

# Business Systems Innovation Labs Pre-lab Pre-flight Checklist



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# Max Lab Pre-Flight (Lab 0) Assignment due next Wednesday

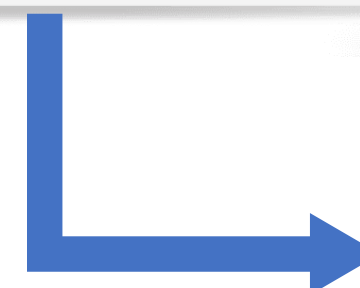
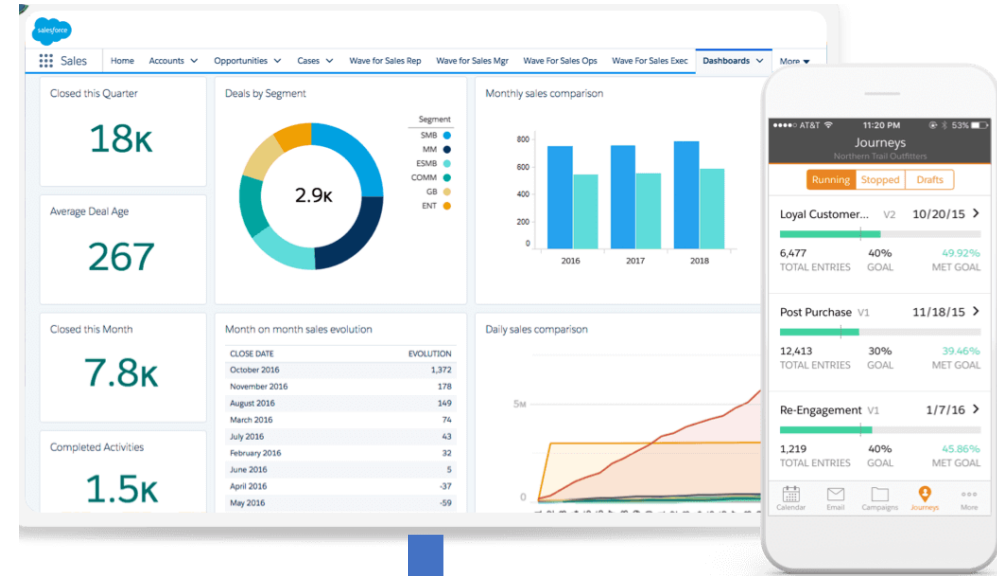
Assignment #2

**FOX**  
**MIS**

# 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 Programming Interface (API's)



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

# Understanding Systems

## Buying textbooks on Amazon

- What is part of that system... what are the steps?
  - 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 "1 result for 'javascript absolute beginner's guide / kirupa chinnathambi'" with a "Sort by: Price: Low to High" dropdown. The main content area displays three sponsored book listings. The first listing is for "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 for "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. The third listing is for "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. On the left side of the page, there is a "Department" section 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". Below this is an "Avg. Customer Review" section with three star ratings and "Up" buttons. There is also a "Computer User Books" section with "Beginners & Seniors", an "Accessibility Features" section with a "Screen Reader Supported" checkbox, and a "Condition" section with "New" and "Used" options.

# Understanding Systems (cont.)

## Buying lunch

- What is part of that system... what are the steps?
- 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 !!!

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Ethan Holmes

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Eloquent JavaScript, 3rd Edition: A Modern Introduction to

Google Apps Script for Beginners  
Serge Gabet

Web Development with ReasonML: Type-Safe, Functional Programming

Building Enterprise JavaScript Applications  
Learn to build and deploy

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

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- Encyclopedia Britannica

# 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/>

# 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.”**

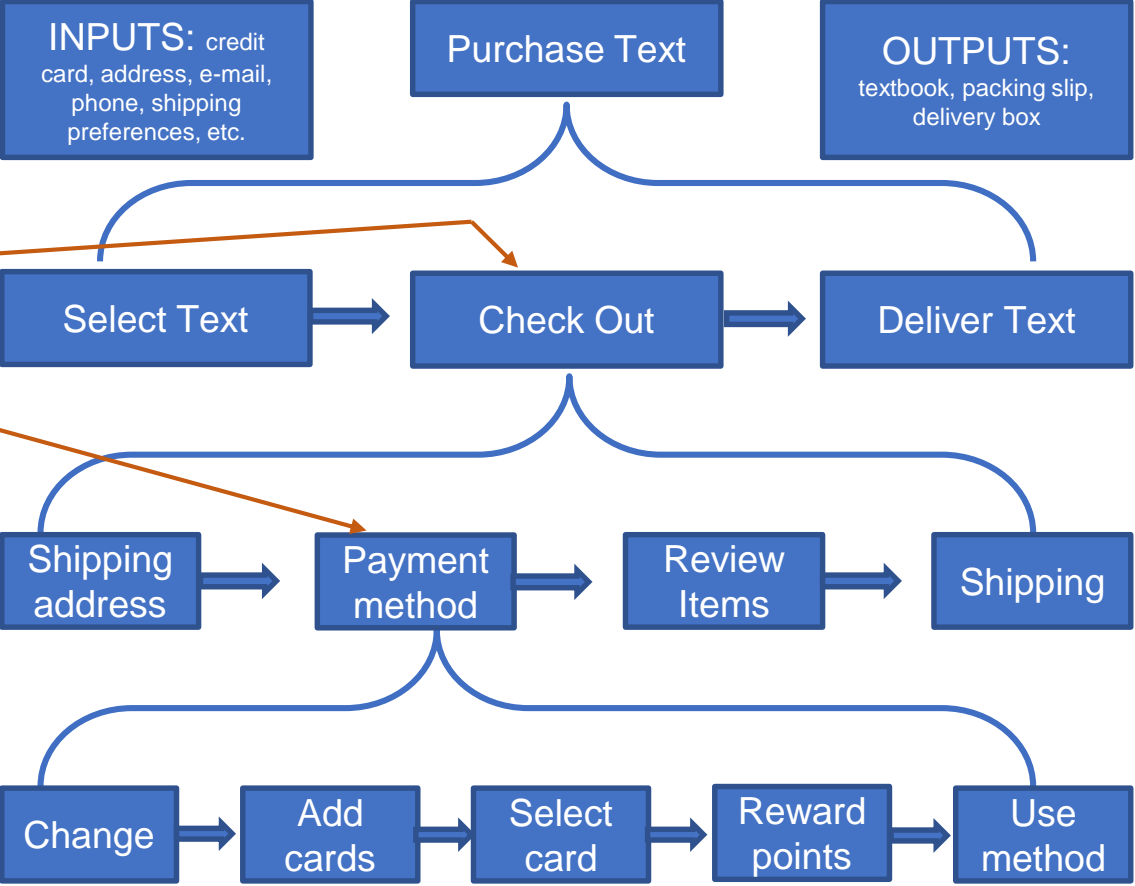
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- Mart Doyle



# System Analysis --- Process Decomposition!

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



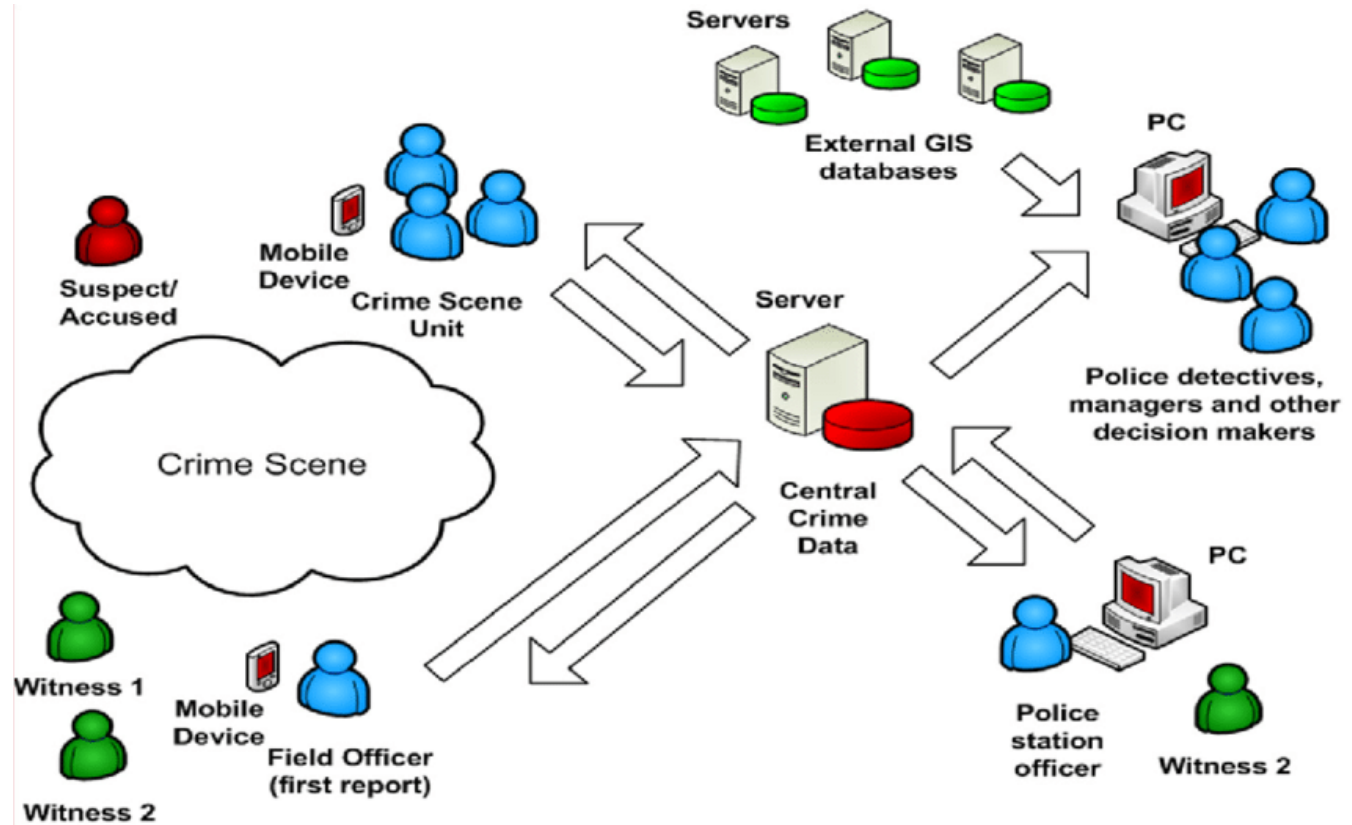
**“Systems Architecture is a response to the conceptual and practical difficulties of the description and the design of complex systems.”**

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- Boris Golden

# Systems Architecture

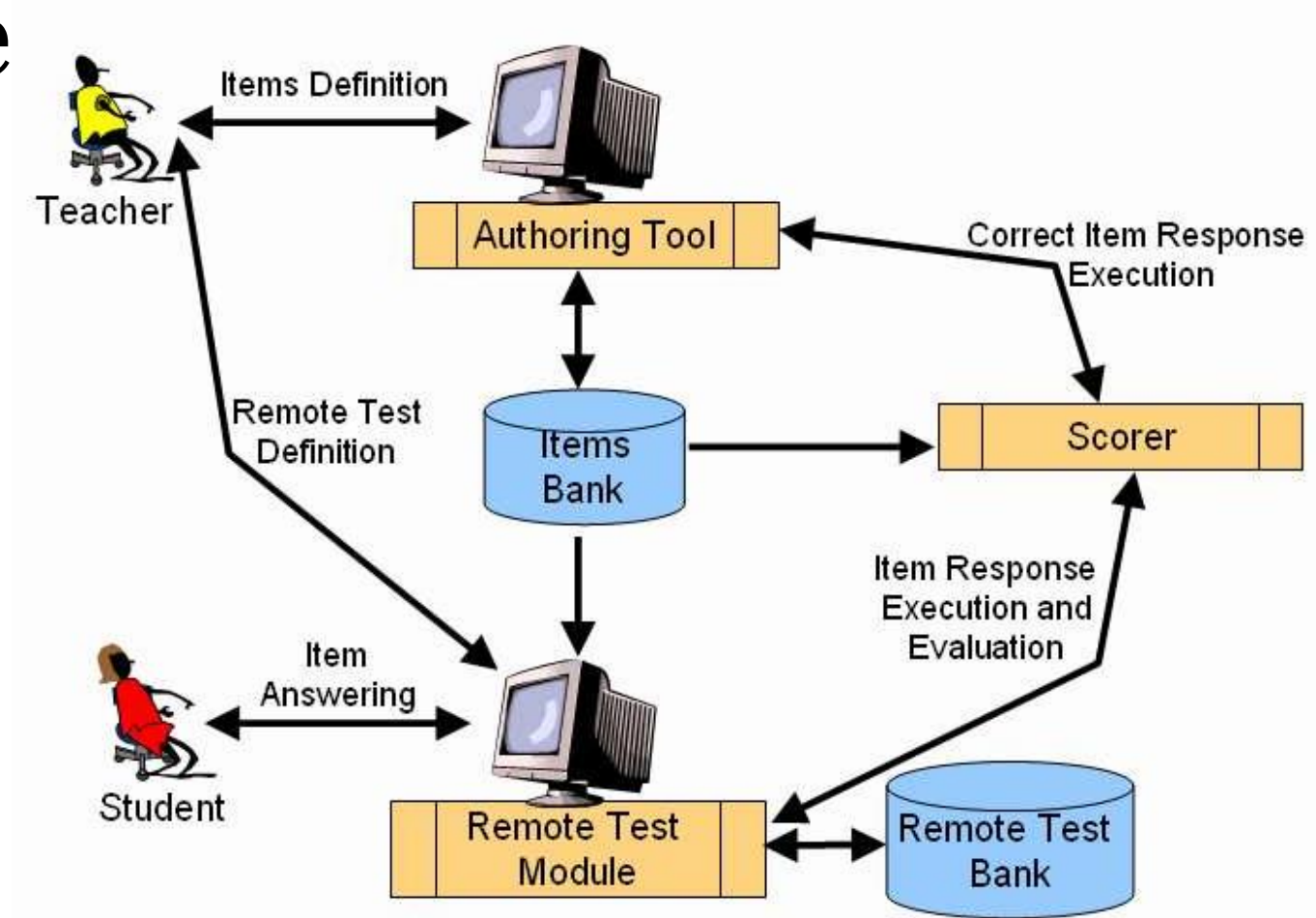
- Conceptual Diagram
- Structural components
- Identify/Solve Problems
- Existing or New
- Communication tool



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/>

## Recap:

### 1. What is “Systems analysis?”:

Problem solving technique that “decomposes” a system into its component pieces for the purpose of studying how well these parts work & interact to accomplish their purpose

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### 2. What is “Systems Architecture?”:

Representation of the system & all of its parts/components



# In-Class Activity #2

---

1.2 What are Systems?

**FOX**  
**MIS**

## Prepare for week 2 – complete before our next class:

- 
- Read articles
  - Watch videos
  - Take notes!