

CSCI E-94
Fundamentals of Cloud Computing - Azure
Joseph Ficara
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- Class Overview
 - First Night
 - Teaching Staff
 - What the course covers
 - Course Coverage FAQs



- Class Overview ...
 - House Rules
 - Use of Al
 - Grading
 - Development Hardware & Tools
 - Some more FAQs



First Night

- Class Overview
- Assignment 01
- Azure Overview
- App Services Part I



Class Overview- Teaching Staff

- Who
 - Instructor
 - Joseph Ficara
 - Head TA
 - Jonathan Franck
 - TAs
 - Max Eringros
 - Jessica Pratt
 - Nancy Forero
 - Gustavo Varo



- In depth coverage
 - Key Microsoft Azure PaaS offerings
- Essentials
 - Microsoft Azure Serverless
 - .NET 9
 - Web API & MVC, Middleware
 - Entity Framework Core
 - VNETs



- The Fundamentals
 - REST
 - Scalable REST Services
 - Security (Authentication & Authorization)
 - Multi-tenancy
 - Architectural Patterns
 - Cache-Aside
 - Pushback, Throttling
 - Retry & Circuit breaker
 - Command and Query Responsibility Segregation
 - And more...



- The Fundamentals ...
 - Azure Al Open Al
 - What is offered in Azure
 - Focus on Azure Al Foundry
 - Semantic Kernel
 - Integrating Al into your Applications
 - Al Orchestration & Agents, Plugins, Prompts & Plans
 - LLM Overview
 - Prompt Engineering
 - Embedding
 - Fine Tuning
 - Best practices & Considerations



- How?
 - Lectures
 - Sections
 - Course Work
 - Homework assignments
 - Microsoft Teams
 - Place to ask async questions
 - Reading material



Course Coverage FAQ

- Can I be successful if ?
 - I know Java, C++
 - Some other OO language
- Yes, if you are a quick study
 - You should be able to pickup C# easily
 - Teaching staff is well versed in C#
 - We can and want to help you!
 - In Section we will cover fundamentals of C#



Course Coverage FAQ

- Will this class teach me ...
 - Azure (laaS) Infrastructure as a Service ?
 - No
 - Azure (PaaS) Platform as a Service services ?
 - YES! (Many but not all...)
 - Azure Serverless
 - YES! Logic Apps and Azure Functions
 - How to
 - Build cloud native applications that run in Azure's cloud?
 - YES!



Course Coverage





Class Overview – House Rules

- House Rules
 - Silence all noise making devices:
 - Cell phones, Laptop, tablet, etc.
 - Still rocking a pager ?
 - Good for you, but please silence it
- We are remote
 - Turn on your camera for a better experience!
- Ask questions!



Class Overview - Use of Al

- Include Attribution regarding the use of Al
 - In development of your assignment
 - In your project notes.txt file
 - You may not use AI to fully implement your assignment or extra credit
 - Example: You can't use it to generate all unit tests
 - You may use Al as an aid
 - In development of the assignment.
 - Implementation of small snippets of code
 - Explaining how code works



Students registered for Graduate Credit

- Required to complete one extra credit option
- Selected option
 - Must be from the available options on the assignment
 - Will be included in your base grade calculation
 - Will not raise your overall score above 100%
- Failure to complete an extra credit option
 - Will result in a deduction
 - Equivalent to the points assigned to the lowest-value extra credit option available.
- Can still implement additional extra credit options
 - From the available options on the assignment
 - To earn a score above 100%



- Assignments
 - Lowest assignment grade is dropped
 - Upload to canvas by 5:00 PM EST date due
 - 1.5 Points deducted per day late
 - Assignments more than 14 days late
 - Receive a grade of 0%
 - Extra points
 - 1 Point per day early up to 5 points max
 - See syllabus for more details



- Assignments ...
 - Accepted submission Canvas Website
 - Students' responsibility
 - Complete assignment & submit it to canvas
 - 5:00 PM EST on due date
 - No excuses accepted...
 - Corrupted Zip file, Computer Crashed
 - My clock was off
 - The internet was broken
 - My mouse ate it
 - Still late!



- Assignments ...
 - You are assigned a grading TA per assignment
 - Posted in Microsoft Teams under the assignment channel
 - Grading TA changes for each assignment

No resubmits!

- Unless requested by your grading TA
 - If resubmit is required by a TA?
 - All <u>early submission extra credit points</u> are forfeit



- Evaluation (How you are graded)
 - Homework is 100% of your final grade
 - There are 7 assignments
 - The assignment with lowest grade is dropped
 - Student can skip a single assignment
 - Skipped assignment receives a score of zero
 - Is considered lowest grade and dropped
 - Uses up the lowest grade dropped benefit







Class Overview - Logistics

- Connectivity Requirements
 - Internet Access
 - Email
 - Your favorite internet browser



Class Overview - Logistics

Sections

- Thursday from 5:30 to 6:30 PM EST
 - Student Q&A & supplemental content
 - Recorded

Instructor office hours

- Typically Saturday or Sunday 1-1.5 Hours
 - Day & Time posted on Teams and Canvas
 - Student Q&A & supplemental content
 - Recorded



Class Overview - Logistics

- Class Website
 - https://canvas.harvard.edu/courses/150243
 - Your Harvard Key Credentials
 - Login Name & Password



Class Website

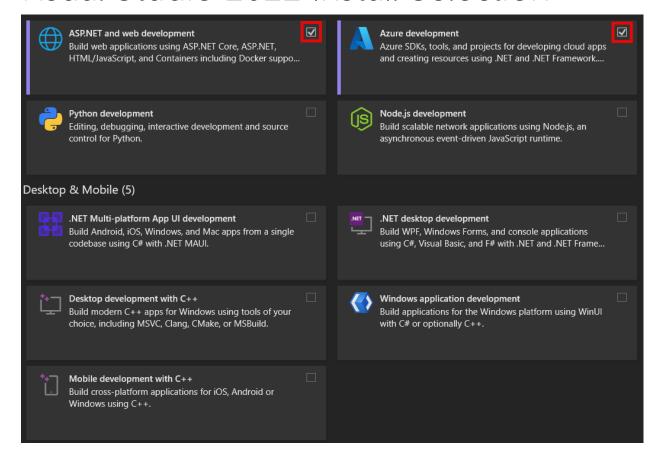
https://canvas.harvard.edu/courses/150243



- Software & Hardware
 - Windows 10 or 11 Professional
 - Visual Studio 2022
 - Community, Pro or Enterprise with latest updates
 See hardware/software requirements here
 Download Visual Studio 2022 Community here
- Microsoft software is free
 - For educational use only
- Most Azure Resources are also "free"
 - You have a budget \$100.00
 - We will use several free services

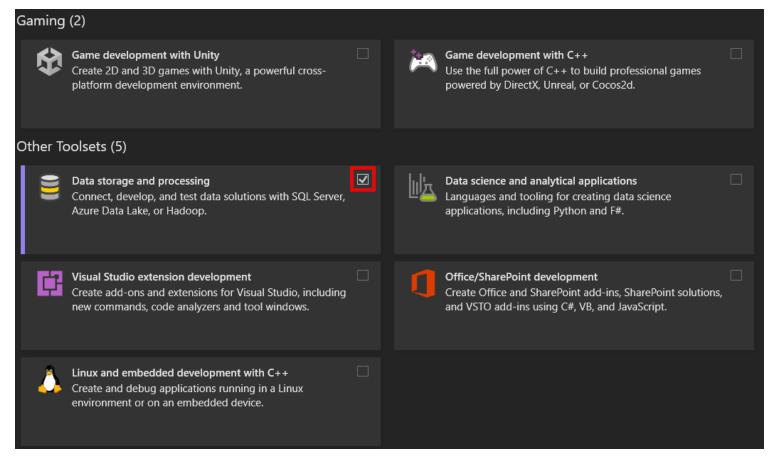


Visual Studio 2022 Install Selection





Visual Studio 2022 Install Selection









- How much time do students dedicate to their assignments?
 - The median student spends between 15 to 20 hours on each assignment.
- What do you submit?
 - Details in each assignment
 - Don't submit the binary
 - Include what you did in your projectnotes.txt
 - Did you get stuck
 - Did you do extra credit
 - What didn't you do



- What assistance is available for students unfamiliar with the technology stack
 - Several sections include lectures on C# and .NET
 - Weekly instructor office hours
 - Sample is code provided
 - In every lecture pack
 - Instructor Office Hours & Section supplemental content
 - Async Q&A regarding lectures and assignments
 - Take place on Microsoft Teams



What assistance is available for students unfamiliar with the technology stack ..

- Microsoft Teams Assignment Channel
 - Post your question in the assignment channel
 - Don't use email
 - Don't include your full assignment
 - Do include context
 - Challenge you are facing
 - Error messages
 - What you have tried so far
 - Other students and TAs can help you



What assistance is available for students unfamiliar with the technology stack ..

- Limited availability for TA 1:1 sessions
 - Request to your grading TA or Jonathan Franck
 - To schedule a time that works for you both
 - Need 2-3 days notice
 - ½ Hour session
 - First come first serve
 - TA's schedule may be full
 - Alternatives
 - Microsoft Teams async Q&A
 - Section
 - Instructor office hours



- How long before my assignment is graded
 - It depends, typically, 2 weeks
- Make sure your service is working in Azure
 - TAs will try to restart it, once
 - If they can't get it working, they will reach out
 - Respond in 24 hours or less
- How do I check on the status of my assignment's grade
 - Check canvas grading, grades are posted there
 - Reach out to your grading TA via Microsoft Teams



| Can I use | | Support Available |
|-----------------------|------------------------|-------------------|
| macOS | ✓ Yes | ✓ Yes |
| Linux | Yes | ⊘ No |
| Windows 11, 10 | Yes | Yes |
| Windows 7, 8, 8.1 | ⊘ No | ⊘ No |
| Visual Studio for Mac | ⊘ No | ⊘ No |
| Visual Studio Code | Yes Required for Bicep | Yes |
| Visual Studio 2022 | Yes | ✓ Yes |
| JetBrains Rider | Yes | ⊘ No |



- Mac Tip
 - To run Windows on a Mac
 - Use: Parallels or VMWare Fusion or Bootcamp
 - We recommend Parallels if using a Mac
 - Academic version available for \$39.95
 - http://www.onthehub.com/parallels/
- JetBrains Rider License
 - They offer a free license
 - See <u>Free Educational Licenses</u>



- Do I need an Azure account
 - Yes See welcome letter for instructions
 - I already have an Azure account can I use it?
 - No
 - We need to have full admin rights to your account
 - Can I add to my existing Azure account
 - No, Use a new Microsoft account
 - Don't use any special characters in email address
 - Keep email address small and simple
 - See: https://account.microsoft.com/account
 - Use a Private / Incognito tab to do so



- Will I be charged for my Azure account?
 - When using academic subscription
 - No
 - What happens when I exceed my limit
 - You will be unable to access paid resources
 - We won't be able to grade your assignment
 - Use free resources whenever possible
 - If I want to pay how much will it cost me?
 - Depends on usage
 - Billed monthly



- Can I use the Azure simulator?
 - Sometimes
 - For available services during your development
 - Not all Azure services have simulations
 - Must deploy finished solution to Azure cloud
 - Grading is against your Azure cloud deployment
 - Recommendation
 - Use Azure Cloud and remote debugging



Class Overview

