NYU SCHOOL OF PROFESSIONAL STUDIES

Database Technologies for Web Applications

MASY1-GC 3540 | 100 | Spring 2024 | 01/24/2024 - 05/01/2024 | 3 Credit
Modality: Online (Sy)
Course Site URL: https://brightspace.nyu.edu/

General Course Information

Name/Title: Farid Razzak, Assistant Professor (he, him, his)
NYU Email: fr497@nyu.edu
Class Meeting Schedule: 01/24/2024 - 05/01/2024 | Wednesday | 07:00pm -- 09:35pm
Class Location: Online
Office Hours: By appointment via Email and Zoom Meeting.

Description

This course examines the database and related applications technologies that have come to be critical in the enablement of web-based applications for e-commerce in its many variations. This lab-based course provides an in-depth study of using database technologies in the context of the Internet, including Oracle, and open-source variations such as MySQL; the role of related scripting languages such as PHP. Also covered are the theory and practice involved in dynamic, database driven websites that are controlled using CSS and other web-enabling artifacts. Upon completion of this course, the student will understand the features of page scripting languages; understand the database options available for the web-based applications; explain how these can be combined with each other and with additional web-based tools to create effective web-based applications.

Prerequisites

3500 – Database Design and Management

Learning Outcomes

At the conclusion of this course, students will be able to:

- Construct HTML pages and specifically containing HTML grids and forms
- Integrate CSS with HTML to improve visual web page presentation
- Create database tables to support web interaction
- Construct an end-to-end database driven web application
- Develop PHP or Python code and integrate that with HTML and database to build web applications using modern web frameworks.
- Select the appropriate features of page scripting languages and database options for web-based applications

Communication Methods

Be sure to turn on your NYU Brightspace notifications and frequently check the "Announcements" section of the course site. This will be the primary method I use to communicate information critical to your success in the course. To contact me, send me an email. I will respond within 24 hours.

Structure | Method | Modality
There are 14 session topics in this course. The session topics are organized into three (3) areas of study: 1) History, 2) Learning Principles, and 3) Instructional Design in Practice.

Active learning experiences and small group projects are key components of the course. Assignments, papers, and exams will be based on course materials (e.g., readings, videos), lectures, and class discussions. Course sessions will be conducted synchronously on NYU Zoom, which you can access from the course site in NYU Brightspace.

Expectations

Learning Environment
You play an important role in creating and sustaining an intellectually rigorous and inclusive classroom culture. Respectful engagement, diverse thinking, and our lived experiences are central to this course, and enrich our learning community.

Participation
You are integral to the learning experience in this class. Be prepared to actively contribute to class activities, group discussions, and work outside of class.

Assignments and Deadlines
Please submit all assignments to the appropriate section of the course site in NYU Brightspace. If you require assistance, please contact me BEFORE the due date.

Course Technology Use
We will utilize multiple technologies to achieve the course goals. I expect you to use technology in ways that enhance the learning environment for all students.

Feedback and Viewing Grades
I will provide timely meaningful feedback on all your work via our course site in NYU Brightspace. You can access your grades on the course site Gradebook.

Attendance
I expect you to attend all class sessions. Attendance will be taken into consideration when determining your final grade.

Refer to the SPS Policies and Procedures page for additional information about attendance.

Textbooks and Course Materials
List required and recommended resources. Be sure to include the following information for each:

- HTML5 & CSS3 - Visual Quickstart Guide (7th Edition) - Available through Amazon
  Author - Elizabeth Castro, Bruce Hyslop
  Publisher - Peachpit Press

ISBN-13: 978-0321719614 or ISBN-10: 0321719611

- Teach Yourself SQL in One Hour a Day (5th Edition) - Available through Amazon

  Author - Ryan Stephens, Ronald Plew & Arie Jones
  Publisher - SAMS

- PHP and MySQL Web Development (5th Edition)

  Authors - Luke Welling & Laura Thomson
  Publisher - Pearson
  ISBN-13: 978-0321833891 or ISBN-10: 0321833899
  Published: 2017

- Instructor may also provide session by session content, which will be posted online.

Grading | Assessment
Your grade in this course is based on your performance on multiple activities and assignments. Since all graded assignments are related directly to course objectives and learning outcomes, failure to complete any assignment will result in an unsatisfactory course grade. All written assignments are to be completed using APA format and must be typed and double-spaced. Grammar, punctuation, and spelling will be considered in grading. Please carefully proof-read your written assignments before submitting them for a grade. I will update the grades on the course site each time a grading session has been completed— typically three (3) days following the completion of an activity.

DESCRIPTION	PERCENTAGE
Homework	20%
Team Project	20%
Participation	10%
Midterm Exam	25%
Final Exam	25%
TOTAL POSSIBLE	100%

See the "Grades" section of Academic Policies for the complete grading policy, including the letter grade conversion, and the criteria for a grade of incomplete, taking a course on a pass/fail basis, and withdrawing from a course.

Course Outline
Start/End Dates: 01/24/2023 - 05/01/2024 | Wednesday
Time: 07:00pm - 09:35pm
No Class Date(s): Wednesday, March 20, 2024
Special Notes: Spring Break 03/18/24 - 03/24/24

Session 1, 01/25/23
HTML and Web Page Content

- HTML web page structure
- The anatomy of HTML element
- The HEAD section
- the BODY section
- HTML tags versus attributes
- Basic HTML tags
- Additional HTML tags
- Formatting text
- Adding list elements
- Creating links to other pages
- Internal anchors vs. external links
- Adding images to your web page
- Using HTML tables
- The HTML Table structure
- Using tables to display rows and columns
- Using tables to layout your page
- The , and , and tags
- Nesting tables
- Wrapping text around tables
    - **Assignments (due one week from today):**
        - **Reading:** Chapter 1-6, 18 (HTML5 & CSS3)
        - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 2, 02/01/23
Cascading Style Sheets

- CSS - Cascading Style Sheets
- Structure of a CSS rule
- Advantages of using CSS
- Inline, embedded and external CSS
- Creating style sheets
- Applying styles to your HTML
- Inline vs. block-level tags
- The and tags
- CSS selectors
- Class and Id selectors
- Contextual selectors
- Cascading and Inheritance rule
- CSS Properties and Values
- Test related properties
- Font related properties
- The element box model
- Box related properties
- Background related properties
- Display and visibility properties
- Positioning related properties

- Relative vs. absolute vs. fixed positioning
- Positioning elements in 3D using z-index
- Specifying length units
- Other media specific styles
- Printing and controlling page-breaks

- **Assignments (due one week from today):**
  - **Reading:** Chapter 7-9, 10-14 (HTML5 & CSS3)
  - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 3, 02/08/23
Java Script, WebUI Frameworks & HTML Forms

- Javascript Overview
- JavaScript Functions Inline, Internal, & External
- Retrieving Values from HTML Elements in JS
- Manipulating HTML Elements with JS
- JS Performance Best Practices
- Debugging Javascript
- JavaScript Syntax and Command Basics
- Setting Values Simultaneously in Javascript
- HTML forms
- Creating input fields
- Creating radio and checkboxes
- Creating selection and dropdown lists
- Submitting a form. Where does it go?
- About server scripts and programming
- Saving and mailing your form content
- The "Get" and the "Post" methods
- Using hidden fields
- Uploading files to a server

- **Assignments (due one week from today):**
  - **Reading:** Chapter 16 (HTML5 & CSS3)
  - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 4, 02/15/23
Introduction to PHP

- PHP variables
- Numeric and string operators
- Comparison and logical operators
- Working with Arrays
- Control Structure and Program Flow
- The if, while, for and each statement

- **Assignments (due one week from today):**
  - **Reading:** Chapter 1, 2 (PHP and MySQL Web Development)
  - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 5, 02/22/23
PHP Functions

- Working with Strings & String functions
- Working with Numbers & Numeric functions
- Working with Dates & Date functions
- Working with Arrays & Array functions

- **Assignments (due one week from today):**
  - **Reading:** Chapter 3, 4, 5 (PHP and MySQL Web Development)
  - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 6, 03/01/23
Accessing HTML Form Data from within PHP

- Accessing HTML form data
- Reading and Writing to Files
- File Permissions
- Inserting, Updating & Deleting from databases
- Querying databases

- **Assignments (due one week from today):**
  - **Reading:** Chapter 11 (PHP and MySQL Web Development)
  - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 7, 03/08/23
***MIDTERM TAKEHOM EXAM STARTED**
Creating Persistence on the Web

- HTTP Protocol and Concepts
- The Client Request
- The Server Response
- The GET and POST Methods
- Accessing/Manipulating HTTP Headers
- Creating Persistence on the Web
- Repopulating From Fields
- Using Hidden Fields
- Using the End of the URL
- Using Cookies
- Creating and Using Sessions

- **Assignments:**
  - **Reading:** Chapter 23 (PHP and MySQL Web Development)
  - **Reading:** Online web research and reading
  - **NYU Classes:** Complete assigned Homework on NYU Classes

Session 8, 03/22/23
**MIDTERM TAKEHOM EXAM ENDED

Advanced PHP (THIS MAY CHANGE TO FLASK, STARLIGHT, DASH Web Framework)

- PHP Forms
- PHP Sessions
- PHP Templating
- PHP DB Connection

- **Assignments (due one week from today):**

- **Reading:** Chapter 2, 3 (Teach Yourself SQL in One Hour a Day)
- **Reading:** Chapter 5 (Teach Yourself SQL in One Hour a Day)

Session 9, 03/29/23
Practical PHP (THIS MAY CHANGE TO a Modern WEB FRAMEWORKS)

- PHP Login Pages
- PHP Registration Pages

- **Assignments (due one week from today):**
  - **NYU Classes:** Complete assigned Homework or Lab on NYU Course Site

Session 10, 04/05/23
Modern Web Frameworks

- FLASK Web Framework
- DASH Web Framework
- STARLIGHT Framework

- **Assignments (due one week from today):**
  - **NYU Classes:** Complete assigned Homework or Lab on NYU Course Site

Session 11, 04/12/23

Modern Web Frameworks Continued

- FLASK Web Framework with SQL Lite
- **Assignments (due one week from today):**

- **NYU Classes:** Complete assigned Homework or Lab on NYU Course Site

Session 12, 04/19/23
WordPress, Alternative Web Framework Application

- Wordpress on Google Cloud
- **Assignments (due one week from today):**
  - **NYU Classes:** Complete assigned Homework or Lab on NYU Course Site

Session 13, 04/26/23

Discussions on Modern Technologies for Web/Database Technologies

- Cloud based Databases
- Microservices framework for web applications.
- Big Data Databases, NoSQL Databases, Datawarehouse.
- Relevant topics to current industry trends.

Session 14, 05/03/23

Final Project Presentations
Final Exam Take Home Exam

NOTES:

The syllabus may be modified to better meet the needs of students and to achieve the learning outcomes.

The School of Professional Studies (SPS) and its faculty celebrate and are committed to inclusion, diversity, belonging, equity, and accessibility (IDBEA), and seek to embody the IDBEA values. The School of Professional Studies (SPS), its faculty, staff, and students are committed to creating a mutually respectful and safe environment (*from the SPS IDBEA Committee*).

NYU SCHOOL OF PROFESSIONAL STUDIES

New York University School of Professional Studies Policies

1. Policies - You are responsible for reading, understanding, and complying with University Policies and Guidelines, NYU SPS Policies and Procedures, and Student Affairs and Reporting.

2. Learning/Academic Accommodations - New York University is committed to providing equal educational opportunity and participation for students who disclose their dis/ability to the Moses Center for Student Accessibility. If you are interested in applying for academic accommodations, contact the Moses Center as early as possible in the semester. If you already receive accommodations through the Moses Center, request your accommodation letters through the Moses Center Portal as soon as possible (mosescsa@nyu.edu | 212-998-4980).

3. Health and Wellness - To access the University's extensive health and mental health resources, contact the NYU Wellness Exchange. You can call its private hotline (212-443-9999), available 24 hours a day, seven days a week, to reach out to a professional who can help to address day-to-day challenges as well as other health-related concerns.

4. Student Support Resources - There are a range of resources at SPS and NYU to support your learning and professional growth. For a complete list of resources and services available to SPS students, visit the NYU SPS Office of Student Affairs site.

5. Religious Observance - As a nonsectarian, inclusive institution, NYU policy permits members of any religious group to absent themselves from classes without penalty when required for compliance with their religious obligations. Refer to the University Calendar Policy on Religious Holidays for the complete policy.

6. Academic Integrity and Plagiarism - You are expected to be honest and ethical in all academic work. Moreover, you are expected to demonstrate how what you have learned incorporates an understanding of the research and expertise of scholars and other appropriate experts; and thus recognizing others' published work or teachings—whether that of authors, lecturers, or one's peers—is a required practice in all academic projects.

Plagiarism involves borrowing or using information from other sources without proper and full credit. You are subject to disciplinary actions for the following offenses which include but are not limited to cheating, plagiarism, forgery or unauthorized use of documents, and false form of identification

Turnitin, an originality detection service in NYU Brightspace, may be used in this course to check your work for plagiarism.

Read more about academic integrity policies at the NYU School of Professional Studies on the Academic Policies for NYU SPS Students page.

7. Use of Third-Party Tools - During this class, you may be required to use non-NYU apps/platforms/software as a part of course studies, and thus, will be required to agree to the “Terms of Use” (TOU) associated with such apps/platforms/software.

These services may require you to create an account but you can use a pseudonym (which may not identify you to the public community, but which may still identify you by IP address to the company and companies with whom it shares data).

You should carefully read those terms of use regarding the impact on your privacy rights and intellectual property rights. If you have any questions regarding those terms of use or the impact on the class, you are encouraged to ask the instructor prior to the add/drop deadline.