

CIS 341 – Interactive Web Programming (4 credits)

Section 1 – Fall 2023

Course description: Examine relationship between Web servers and Web clients. Create interactive Web pages with server-side and client-side script. Pass information between pages. Store and retrieve information to and from a database.

Course information

Class meetings	Mondays and Wednesdays, 8:00-9:50 AM, SCI D226
Final exam time	Final exam will be available in Canvas during the final exam period.
Instructor	Tomi Heimonen, PhD
Office location	B235, Science Building
Email	theimone@uwsp.edu
Telephone	(715) 346-4145
Communication	You are encouraged to contact me if you have any questions. When communicating via email, please add "CIS 341" on the subject line.
Office hours	In-person: Tuesdays, 9:00-11:00 AM Online: Thursdays, 9:00-11:00 AM Check Canvas for instructions on how to sign up for online office hours.
Class website	Canvas will be used to distribute course materials, assignments, and grades. Check it regularly to stay informed of changes to class schedules and other important announcements.
Prerequisites	CNMT 210 and CIS 340
Textbooks	The following optional textbook is available via Text Rental: <ul style="list-style-type: none">• Adam Freeman: Pro ASP.NET Core MVC 2, 7th Ed. (2017), Apress. ISBN: 978-1484231494.

This syllabus and course timetable are subject to change. It is your responsibility to check Canvas for corrections and updates. Any changes will be clearly noted in class, in a course announcement and/or through email.

Course learning outcomes

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

1. Describe the functionality, benefits, and drawbacks of select web application architectures and the Model-View-Controller (MVC) pattern.
2. Explain the purpose of core web application concepts including the HTTP request/response cycle, routing, model binding and validation, and dependency injection.
3. Implement a web application using the ASP.NET Core framework.
4. Describe common web application security issues and recommended approaches to addressing them.
5. Verify correct web application behavior using unit testing.
6. Design and implement simple RESTful web APIs.

Course requirements

Completing coursework awards a maximum total of 100 points.

Labs: 45 points.

- Programming labs will help you familiarize yourself with the concepts and techniques introduced in course content and work towards completing the course project.
- The course has 11 labs. Two of the lowest scoring labs will be dropped when calculating the final grade.

Course project: The course project awards a total of 30 points.

- The course project supports you in demonstrating your competence in applying the knowledge and skills gained during class.
- You will implement a database-driven web application using ASP.NET Core 7 and related frameworks.

Exams and quizzes: Exams and quizzes award a total of 25 points.

- Exams and quizzes will assess your ability to describe, explain and apply the key topics and concepts discussed in course materials.
- Exams and quizzes will cover the assigned readings and content introduced in class.

All coursework is to be completed individually unless otherwise instructed in writing.

Submitting coursework

All coursework must be submitted **electronically through Canvas**, unless otherwise instructed. Email submissions are not accepted.

Points you receive for graded activities will be posted to Canvas. Online grades are updated once a grading session has been completed – typically within 4-5 business days following the completion of an activity.

Software and hardware requirements

We will use Microsoft Visual Studio 2022 during the course for web application development. Visual Studio is installed in campus labs and is available through remote labs. You can also download a free version from <https://visualstudio.microsoft.com/downloads/>.

All assignment code must be stored in GitHub under your personal account.

Grading scale

Final grades will be determined as a percentage of points earned out of 100 points according to the following scale:

Grade	Percentage	Grade	Percentage	Grade	Percentage
A	94.00% or more	B-	83.99% – 81.00%	D+	69.99% – 65.00%
A-	93.99% – 91.00%	C+	80.99% – 78.00%	D	64.99% – 60.00%
B+	90.99% – 88.00%	C	77.99% – 74.00%	F	Less than 60.00%
B	87.99% – 84.00%	C-	73.99% – 70.00%		

The instructor reserves the right to revise the grade cutoffs to be more generous if necessary.

Course policies

Late work

Coursework must be submitted by the given deadline, or an extension must be requested from the instructor **before the due date**. If you know ahead of time that you will have a legitimate reason for missing a due date, contact the instructor to discuss an extension.

Coursework that is turned in late will receive a 20% reduction in points awarded. **Submissions that are more than 3 days late will receive 0 points.**

The instructor reserves the right to adjust this policy to account for extraordinary situations, such as documented illness or medical emergencies. You are required to inform the instructor as soon as possible of such situations.

Attendance

Attending class will likely be the single most important factor in determining your performance and grade in the course, so plan to attend every class. The relationship between attendance and achievement in education has been extensively documented in peer-reviewed research. **I am not able to re-teach the material to you if you are absent, but I will do my best to provide alternative options for you to acquire the content.**

Excused absences: If you need to miss a class, notify the instructor via email no later than the morning of the class meeting in question.

- The following is a non-exhaustive list of legitimate reasons to be absent from class: illness, COVID-19 isolation, religious observance, military service obligations, pregnancy, and medical appointments.
- Documentation is **not required** for absences for the above reasons unless you will end up missing more than two consecutive class meetings.

Making up missed in-class work, such as exams and assignments, is **allowed only for excused absences**. Coursework needs to be completed within 7 days of the original due date, unless otherwise agreed upon in writing with the instructor.

- In case of extenuating circumstances, such as personal or medical emergencies, you should contact the instructor as soon as possible to discuss arrangements for making up missed coursework.

If you have any questions or concerns regarding this policy, your first point of contact should be the instructor. If you are unable to reach the instructor, or if you are experiencing a personal or medical crisis/emergency, contact the Office of the Dean of Students at dos@uwsp.edu or (715) 346-2611.

Absences due to military service

You will not be penalized for class absence due to unavoidable or legitimate required military obligations, or medical appointments at a VA facility, not to exceed two (2) weeks unless special permission is granted by the instructor. You are responsible for notifying faculty members of such circumstances as far in advance as possible and for providing documentation to the Office of the Dean of Students to verify the reason for the absence. The faculty member is responsible for providing reasonable accommodations or opportunities to make up exams or other course assignments that have an impact on the course grade. For absences due to being deployed for active duty, please refer to the [Military Call-Up Instructions for Students](#).

Dropping/withdrawing from the course

It is the student's responsibility to understand when they need to consider un-enrolling from a course. Refer to the [Academic Calendar](#) for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons include, but are not limited to, the following: documented and severe physical/mental illness/injury to the student or student's family. Please consult the instructor at the earliest opportunity to discuss the need to drop the course after the mandated deadline.

Incomplete grades

Under emergency/special circumstances, you may petition for an incomplete grade. An incomplete will only be assigned if inability to complete the coursework was due to a documented illness/injury or other circumstance beyond your control. All incomplete course assignments must be completed by the end of the Spring 2024 semester.

Teamwork

Some of the coursework activities may be completed in teams of 2-3 students. Each member of the group is responsible for completing their portion of the assigned work to the best of their ability. As a part of each coursework activity carried out as a group, the groups are required to submit a statement that describes how the group divided up the work. The statement may be used as the basis for grading and conflict resolution.

Nondiscrimination

You may be asked to review and provide feedback on the work created by your peers. When doing so, please remember that the objective is to critique the work, not the person.

It is the policy of the University of Wisconsin-Stevens Point to:

Foster an environment of respect for the dignity and worth of all students, employees, and guests of the university; Provide an environment which is conducive to the free and open exchange of ideas; and Strive to eliminate bias, prejudice, discrimination, and harassment in all forms and manifestations.

Discrimination based on an individual's age, race, color, religion, sex, gender identity or expression, national origin, ancestry, marital status, pregnancy, parental status, sexual orientation, disability, political affiliation, arrest or conviction record, membership in the National Guard, state defense force or any other reserve component of the military forces of the United States or this state, or other protected class status is demeaning to all students, employees, and guests; impairs the process of education; and violates individual rights.

Accommodations

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability Resource Center (DRC) in CCC 108 as soon as possible. DRC can be reached at (715) 346-3365 or drc@uwsp.edu.

Academic integrity and honesty

As a student in this course and at this university, you are expected to maintain a high degree of professionalism, commitment to active learning and participation, and integrity in your behavior in and out of the classroom.

As an academic community, we at UWSP place great emphasis on academic integrity and honesty. Plagiarism, fabrication, cheating, helping others commit these acts, and any form of dishonesty compromise the educational process and devalue the achievements of all students. All work you submit must be original and completed individually unless collaboration is explicitly allowed. Always acknowledge your sources, cite appropriately, and give credit where it's due.

If instances of alleged academic dishonesty are identified, appropriate actions will be taken in accordance with the institution's policies ([UWSP Chapter 14](#)). These actions could include revising the assignment, receiving a lower grade or no credit for the assignment, receiving a lower grade for the entire course, or facing more serious academic consequences. If you are unsure if something might be considered academic misconduct, you are struggling to understand the content or an assignment, or you have fallen behind for whatever reason, please contact your instructor as soon as possible.

By nurturing a community of support, honesty, and respect, we ensure that academic pursuits and your experiences at UW-Stevens Point are both meaningful and genuine.

Use of third-party content and previous assignments

- Unauthorized use of ChatGPT, or other generative AI tools such as GitHub CoPilot, is not permitted in this course and will be treated as plagiarism.
- You may use other online information and learning materials/sources, such as StackOverflow, YouTube and LinkedIn Learning, to help in completing graded course activities.
- You must properly cite and acknowledge any design elements, code, or other third-party material that you incorporate into your own work. Failure to do so will be considered a form of academic misconduct and is subject to disciplinary action.
- Submitting work previously presented in another course is not allowed, unless approved by the instructor in writing.

If you have any questions or concerns on acceptable practices, consult the instructor in advance.

Emergency preparedness

In the event of a medical emergency call 9-1-1 or use the nearest campus phone outside SCI B215. Provide assistance, if trained and willing to do so. Guide emergency responders to victim(s).

In the event of a tornado warning, proceed to the basement corridor in the Science building and shelter in place.

In the event of a fire alarm, evacuate the building in a calm manner. Meet at the courtyard of the Chemistry and Biology building. Notify instructor or emergency response personnel of any missing individuals.

Active Shooter – RUN. HIDE. FIGHT. If trapped, hide, lock doors, turn off lights, spread out and remain quiet. Call 9-1-1 when it is safe to do so. Follow instructions of emergency responders.

See [UW-Stevens Point Emergency Procedures](#) for details on all emergency response at UW-Stevens Point.

Tentative course schedule

WEEK	TOPICS	COURSEWORK DUE
01	Syllabus review & introduction <ul style="list-style-type: none"> Working with Visual Studio IDE and .NET Core Project brainstorming 	Lab 1: Visual Studio 2022 setup and project preparation
02	Web application architectures <ul style="list-style-type: none"> Software architectures: types, structure, functionality Multi-page vs. single-page web apps 	
03	Web application development patterns and principles <ul style="list-style-type: none"> Software design patterns and frameworks Web app development conventions and principles 	Lab 2: Initial project design
04	Introduction to the ASP.NET Core 7 framework <ul style="list-style-type: none"> App architecture: startup, configuration, hosting, middleware, services (dependency injection) UI: MVC, Razor Pages and Blazor Razor markup 	Lab 3: Create and modify an ASP.NET Core web app Quiz 1 (Canvas)
05	Requests and routing <ul style="list-style-type: none"> HTTP request lifecycle Routing: directing requests to endpoints Custom routing, logging, and error handling 	Lab 4: Work with routing and error handling
06	Model-View-Controller <ul style="list-style-type: none"> Key concepts and terminology MVC architecture in ASP.NET Core apps 	Course project: Checkpoint 1
07	Implementing controllers <ul style="list-style-type: none"> Class structure Routing to action methods, model data binding and validation Session and state management 	Lab 5: Implement the controller structure
08	Views, partial views, and view components <ul style="list-style-type: none"> Class structure Layouts, partial views, and reusable components 	Lab 6: Create the view structure with placeholder data Midterm exam (Canvas)
09	Models and entities <ul style="list-style-type: none"> Class structure Use of model validation attributes Domain-driven design and object-relational mapping basics 	Lab 7: Define entities and data transfer objects
10	Model persistence <ul style="list-style-type: none"> Entity Framework Core and LINQ Database integration; using migrations 	Lab 8: Implement database integration and query entities
11	Web application security <ul style="list-style-type: none"> Common web app security issues Authentication and authorization basics; using Identity 	Lab 9: Add authentication and authorization
12	Web app testing <ul style="list-style-type: none"> Testing approaches for web apps Unit testing in ASP.NET Core 	Lab 10: Write controller unit tests Quiz 2 (Canvas)
13	Web APIs <ul style="list-style-type: none"> RESTful APIs Microservices architectures 	Course project: Checkpoint 2
14	Implementing Web APIs in ASP.NET Core <ul style="list-style-type: none"> Controller-based APIs vs. minimal APIs 	Lab 11: Implement Web API endpoints
15	Flex	Course project: Checkpoint 3
16	Final exam period	Final exam (Canvas)

Important Note: Refer to Canvas for specific due dates for coursework. If you have any questions, please contact the instructor.