

CIS 341 – Interactive Web Programming (4 credits)

Section 1

Semester I 2021-2022

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 Thursdays, 5:00PM – 6:50PM, Science A224
Final exam time	Final exam will be available in Canvas during the final exam period.
Instructor	Tomi Heimonen, Ph.D.
Office location	Science B235
Email	theimone@uwsp.edu
Telephone	(715) 346-2356
Communication	You are encouraged to contact me if you have any questions. For online communications, use the functionality available in Canvas when possible. When communicating via email, please add “CIS 341” in the subject line.
Office hours	In-person: Mondays and Wednesdays, 9:00AM-11:00AM; Fridays 9:00AM-10:00AM Online: By appointment 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 – Web Design and Development I CIS 340 – Advanced Techniques in Application Development
Textbooks	The following required text is available through Text Rental: <ul style="list-style-type: none">• Adam Freeman, Pro ASP.NET Core MVC 2, 7th Edition, Apress. ISBN: 978-1484231494.

Important: This syllabus, along with course assignments and due dates, are subject to change. It is the student's responsibility to check Canvas for corrections or updates to the syllabus. Any changes will be clearly noted in class, in a course announcement and/or through email.

Course learning outcomes

The goal of this course is to introduce the core concepts, techniques, and tools for developing interactive web applications.

Upon completing this course, you will be able to:

1. Describe the purpose and functional aspects of architectural approaches such as client-server, service-oriented architectures, and Model-View-Controller (MVC) in constructing web applications.
2. Describe common web application security issues and recommended approaches to addressing them.
3. Demonstrate competency in implementing the MVC pattern to structure a web application and implement its lifecycle.
4. Demonstrate competency in framework-driven development using the Microsoft Visual Studio development environment, ASP.NET Core framework and associated tools.
5. Demonstrate competency in implementing a RESTful web API.

Course requirements

Completing coursework awards a maximum total of 100 points.

Assignments: 30 points. Each assignment awards points towards the grade as defined in the assignment instructions.

- Unless teamwork is specifically permitted in assignment instructions, **you must complete the assignment individually without outside assistance.**

Course project: 40 points. The course project consists of several steps valued separately.

Exams and quizzes: 30 points. Exams and quizzes will be scheduled periodically to cover the assigned readings and class content.

Specific coursework requirements and due dates will be announced in class and Canvas, along with further instructions. It is your responsibility to check Canvas for assignments and material distributed in class.

Submitting coursework

All coursework must be submitted **electronically through Canvas**, unless otherwise instructed.

Viewing grades in Canvas

Points you receive for graded activities will be posted to Canvas. Online grades are updated typically within 5-7 business days following the completion of an activity.

Software requirements and file storage

We will use Microsoft Visual Studio 2019 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/>.

Storage media (e.g., flash drive or external hard drive) or cloud-based storage (e.g., Microsoft OneDrive) will be useful to store and back up the projects created during this course.

Grading scale

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

Grades	Percentage	Grades	Percentage	Grades	Percentage
A	100.00% – 94.00%	B-	83.99% – 80.00%	D+	69.99% – 65.00%
A-	93.99% – 90.00%	C+	79.99% – 77.00%	D	64.99% – 60.00%
B+	89.99% – 87.00%	C	76.99% – 74.00%	F	< 60%
B	86.99% – 84.00%	C-	73.99% – 70.00%		

The instructor reserves the right to revise the grade cutoffs to be more generous, if necessary, based on overall class performance.

Late policy

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 by 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 quarantine, 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 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 to provide 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](#).

Other policies

Face coverings

At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the [Disability and Assistive Technology Center](#) to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

This policy may be adjusted based on the duration of the chancellor's mask mandate.

COVID-19 precautions

- Please monitor your own health each day using [this screening tool](#). If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
 - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.

- Please maintain these same healthy practices outside the classroom.

Teamwork

Some of the coursework activities will 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.

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 [UWSP 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 policy

Under emergency/special circumstances, students 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 the student's control. All incomplete course assignments must be completed by the end of Semester II 2021-2022.

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

UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe their disability.

If modifications are required due to a disability, please inform the instructor, and contact the Disability and Assistive Technology Center to complete the [accommodations application process](#). Phone: (715) 346-3365 or datctr@uwsp.edu.

Academic honesty and integrity

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.

UWSP 14.01 Statement of principles

The board of regents, administrators, faculty, academic staff and students of the university of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the university of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

UWSP 14.03 Academic misconduct subject to disciplinary action

- (1) Academic misconduct is an act in which a student:
 - a. Seeks to claim credit for the work or efforts of another without authorization or citation;
 - b. Uses unauthorized materials or fabricated data in any academic exercise;
 - c. Forges or falsifies academic documents or records;
 - d. Intentionally impedes or damages the academic work of others;
 - e. Engages in conduct aimed at making false representation of a student's academic performance; or
 - f. Assists other students in any of these acts.
- (2) Examples of academic misconduct include, but are not limited to:
 - a. cheating on an examination;
 - b. collaborating with others in work to be presented, contrary to the stated rules of the course;
 - c. submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another;
 - d. submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas;
 - e. stealing examinations or course materials;
 - f. submitting, if contrary to the rules of a course, work previously presented in another course;
 - g. tampering with the laboratory experiment or computer program of another student;
 - h. knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

Use of third-party content and work previously presented in another course

Specific allowances for using content created by others are explained in the coursework instructions. Standard citation and acknowledgment practices apply when using third party content, such as text, images, video, and program code. If in doubt, consult the instructor in advance.

Submitting work previously presented in another course is not allowed, unless approved by the instructor in writing.

Tentative class schedule

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

Week	Topics	Coursework due
01	Introduction <ul style="list-style-type: none"> Syllabus review Working with the Visual Studio IDE and .NET Core 	Assignment 0: Prior knowledge and skills quiz (1 point)
02	Web application development patterns and principles <ul style="list-style-type: none"> Software design patterns for web apps Web app development conventions and principles 	Assignment 1: Course project planning activity (5 points)
03	Web application architectures <ul style="list-style-type: none"> Types of architectures: monolithic (all-in-one), layered, microservices, clean Multi-page vs. single page web apps 	
04	ASP.NET Core framework overview <ul style="list-style-type: none"> App startup, configuration, and hosting settings HTTP request pipeline and middleware services Razor markup and Razor Pages 	Quiz 1 (5 points) Course project – Checkpoint 1 (5 points)
05	ASP.NET Core framework continued <ul style="list-style-type: none"> Routing HTTP requests Logging app events and error handling 	Assignment 2: Set up an ASP.NET Core application (5 points)
06	Model-View-Controller in ASP.NET Core <ul style="list-style-type: none"> MVC key concepts and terminology Creating an MVC application in Visual Studio 	
07	Model-View-Controller in ASP.NET Core <ul style="list-style-type: none"> Controller class structure Routing to action methods Model data binding and validation between Views and Controllers 	Course project – Checkpoint 1 (10 points)
08	Model-View-Controller in ASP.NET Core <ul style="list-style-type: none"> View class structure Layouts and partial views View components 	Midterm exam (10 points) Assignment 3: Create Controller and View structure with model binding (5 points)
09	Model-View-Controller in ASP.NET Core <ul style="list-style-type: none"> Model class structure Entity Framework Core and Code First database design 	
10	Model-View-Controller in ASP.NET Core <ul style="list-style-type: none"> LINQ queries Model persistence, database integration and migrations 	Assignment 4: Define and implement domain classes (5 points)
11	Web application security <ul style="list-style-type: none"> Typical web app security issues Security features in ASP.NET Core 	Course project – Checkpoint 2 (10 points)
12	Web app security in ASP.NET Core <ul style="list-style-type: none"> Implementing authentication and authorization in ASP.NET Core 	Assignment 5: Implement model persistence and querying (5 points)
13	Web APIs <ul style="list-style-type: none"> RESTful services key concepts and terminology Creating Web APIs with ASP.NET Core 	Quiz 2 (5 points)
14	Hosting and deployment of apps <ul style="list-style-type: none"> Web app hosting options Deploying web apps (DevOps) – guest lecture(?) 	Assignment 6: Implement a simple Web API (5 points)
15	Work time on course project	Course project – Final project submission (15 points)
16	Final exam period	Final exam (10 points)