**CYBR 201 (9131): Web Technologies Essentials: Security and Design**

3 Credits

**Semester:** Fall 2025

**Day/Time:** Monday 6:00-8:50 PM

**Location:** Hudson 0110

**Instructor:** Crystal Jones-Howe (She/Her)

**Contact:** CJones-Howe@albany.edu

**Office Hours:** As requested,

**Office Location:** Online

**Office Hour Zoom:** As requested

# COURSE DESCRIPTION

This course serves as a gateway into the dynamic realm of web technologies and web security, covering a wide spectrum of topics, from the fundamentals of web architecture to the critical aspects of web security. This course is designed to empower the students with the knowledge and skills necessary to navigate the web landscape confidently and securely. A technique-oriented introduction to client-based Web design and development technologies, including HTML/XHTML, CSS, JavaScript, digital imaging, file formats, etc.; the elements of UNIX and networks necessary to understand and implement basic information management and transfer. The most common web attacks and their countermeasures are also included in this class.

# COURE STRUCTURE AND REQUIREMENTS

Meet Monday 6:30-8:50 pm in Hudson 0110

Session will include lectures, interactive discussion, and hands-on lab work.

Attendance and participation in activities are required and count towards your grade

Tools required:

* Computer or Device with Internet Access
* Brightspace
* GitHub Classroom
* Text Editor

# PREREQUISITES

None

# COURSE LEARNING OBJECTIVES

Upon completion of the course, students should be able to accomplish the following activities:

* Apply basic information management and transfer techniques.
* Use current techniques and web tools to create, modify, and deploy interactive web pages.
* Solve issues with webpage code that prevent it from validating according to current standards.
* Produce a website
* Implement accessibility features and basic web design principles.
* Add dynamic elements and user interactivity to web documents using scripting languages.
* Format text using appropriate tags and add graphics and sounds.
* Use forms to control input
* Learn practices and principles of web security
* Understand common web attacks and their countermeasures

# GRADING AND ASSIGNMENTS

## Grading

Thiscourse is A-E graded, and the grades are determined based on graded assignments:

|  |  |
| --- | --- |
| **Graded Assignment Category** | **Grade%** |
| Participation | 10% |
| Homework assignments | 15% |
| Labs | 30% |
| Class Project Presentation | 20% |
| Class Team Project | 25% |

Your final grade will be based on a scale of 100 points:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | **A-** | **B+** | **B** | **B-** | **C+** | **C** | **C-** | **D+** | **D** | **D-** | **E** |
| 100-94 | 93-89 | 88-85 | 84-82 | 81-79 | 78-76 | 75-73 | 72-70 | 69-67 | 66-64 | 63-60 | 59-0 |

## Participation

Attendance is expected. More than two absences will result in a deduction in your Attendance and Participation grade. If you know you will be absent, email the Professor in advance. Participation is expected and includes lectures, group activities, exercises, and quizzes.

## Homework Assignments

Students will have individual and group homework assignments. A variety of homework assignments will be given throughout the semester. Completing these is vital to understanding and participating in the class. Students will find, analyze, and discuss web technologies and security assignments.

## Labs

This is individual work. Everyone is assigned labs and practice during class. Then, submits it via Brightspace and Github after the class.

## Exams

The midterm (Exam 1) and the final (Exam 2) will be cumulative and cover the course materials. Both exams will be online, open books/notes, and consist of combinations of short answer and/or multiple-choice questions and short essays.

## Class Team Project and Presentation

Students will work in teams (of 3 or 4) to select a topic, conduct research, analyze findings, prepare the slides, and present them during class. The teams will also present their work as a poster at the CEHC Showcase. Details regarding the content and format will be given during the semester. The topics and methods used will be relevant to the course materials.

## Required Readings

All readings and assignments will be uploaded on Brightspace. Reading material will be available through Brightspace and does not require the purchase of a book. In some cases, the readings may consist of watching videos. When possible, a link to the readings and a PDF copy/download of the video will be available so students can access the information regardless of routine internet access. There is no required textbook for the class.

## Software Packages

Students will require access to a computer on campus or a Mac or PC that they have permission

to install software, use a variety of browsers, and access the Internet. You may also be required to utilize the following software:

* A text editor program (i.e., Notepad++; most computers already have one installed, and if yours does not have any, many are free) or Microsoft Visual Studio Code (Windows and Mac) to write our code for this class.
* Use the link https://htmldog.com/ for reference
* Validation software or links
* https://www.freeformatter.com (This tool includes several formatters, validators, code minifiers, string escapers, encoders and decoders, message digesters, web resources, and more.
* Markup Validation Service: <https://validator.w3.org/>

# COURSE SCHEDULE

| **Week** | **Class Topic** | **Notes** | **Assignments** |
| --- | --- | --- | --- |
| 01 | Overview | Opening of Brightspace, Selection of Teams | Homework: Team Preferences Assignment |
| 02 | Introduction to Web Technologies | History of the World Wide Web  Think of an Interesting Web Project Idea & Topics for the Class Project. | Lab: Complete the Team Membership and   * Sign up for Github * Work with your Team |
| 03 | Introduction to Web development  How the web works | The World Wide Web  World Wide Web Consortium (W3C)  Use the Project Charter template provided to document the Web Project. | Lab: Setup Development Environment – Cont.   * Setup Development Environment |
| 04 | Introduction to HTML | HTML  Web Design | Lab: Individual Activities   * HTML Basics: Structure and Formatting * Lab Project 1: Share Your Travels |
| 05 | Introduction to CSS and Web Media | Dividing up the Page (div)  Accessibility  Styling div, HTML 5, Images  Remark: Start to Develop the Website - Class Project | Lab: Individual Activities   * Intro to Cascading Stylesheet (CSS) * Graphics Design with CSS |
| 06 | Designing for the Mobile Web | Mobile development and accessibility  Mini Module: Responsive Design   * Mini Module Readings and Resources | Lab:   * Building Site Navigation Structure * Update Class Project Using Responsive Design |
| 07 | Working with Tables, Columns & Forms | Mini Module: Responsive Design   * Mini Module Readings and Resources | Lab:   * Data tables * Web forms * Form accessibility |
| 08 |  |  |  |
| 09 | Advanced CSS: Layout  Introduction to JavaScript | Mobile development and accessibility  Mini Module: Responsive Design   * Mini Module Readings and Resource   What is JavaScript  User Input | Lab:   * Finalize the class presentation * Develop web application – Cont. |
| 10 | Working with Variables and Data Types | Variables and Data Types  Operators and Comparisons  Algorithm: If… else | Lab:   * Update the class project web project with the latest technology |
| 11 | Working with events and styles | Events and Functions  Loops and Switch | Lab:   * Continue to develop the class web project |
| 12 | Basic about Web security | What is web security?  DNS, HTTP |  |
| 13 | Client-side attacks and defenses | Cookies and sessions  Session attacks, cross-site request forgery  Denial-of-service  Phishing  Defenses: Online tracking, What can be done about it? Who’s doing it? |  |
| 14 | Server-side attacks and defenses | Code injection  Server security, safe coding practices  HTTPs and Lock Icon  Authentication |  |
| 15 | Team Presentation |  | Team Project |

# COURSE COMMUNICATIONS - BRIGHTSPACE

This course is offered in a face-to-face (and synchronous online for only a specific section) learning format. The instructor will be available in class and at and by appointment. Students will prepare for class in advance, actively participate, and complete assignments. The Brightspace Learning Management System is an essential part of the communications regarding the course. Course announcements, extra reading materials, extra visual materials, discussion board directives, and assignments will be provided via Brightspace. If students are not familiar with Brightspace, they may please visit the Brightspace help pages for students: <https://wiki.albany.edu/display/public/askit/Brightspace+Resources+for+Students>

## University Showcase

University Showcase was designed an an opportunity for students withing the informatics, game design and development, emergency management, homeland security and cyber security fields to highlight and present interesting projects, research and concepts they are learning withing their courses. It also provides students with an opportunity to showcase their findings to other and develop a high desired presentation and people skills. All students in CYBR 201 will be present at this event and should reserve that time ni their schedule. If your schedule does not permit you to attend, you will have an alternat assignment. Note: I grade easier for Showcase presentations that for the alternative assignment so you should seriously consider your schedule limitations! Also note: Showcase Day is a classroom-free academic day!

# POLICIES

## Attendance Policy

Attendance will be determined by class attendance and logging in and submitting work on time. Consistent attendance and active engagement throughout the week are essential for maintaining a passing grade. Please note that due to the assignment structure, there won't be any makeup opportunities available unless you have a valid excuse, such as a medical excuse. It is your responsibility to stay updated with the course requirements and log in multiple times each week.

## Missed Exams and Assignments

Early and frank communications with the professor about a problem you are having that will affect your ability to perform on time is very much in your interest. In appropriate circumstances, a deadline on an assignment might be extended briefly if explained and requested in advance. If an extension was not requested reasonably before the assignment was due, it is still in your interest to get the assignment in at the time of the next class, albeit possibly for decreased credit at the discretion of the professor. After that next class, whether late work will be accepted at all is entirely at the discretion of the professor. You will typically fare better, however, if you talk with the professor about the problem as soon as possible.

Exams cannot normally be made up unless arranged in advance for a very good reason at the professor's discretion. The new exam time will be as close as possible to the original exam time, and how close that can be would be an important consideration for the professor in any exercise of discretion. Unless an absence is excused, only a small accommodation will be considered.

Also note, the University’s Medical Excuse Policy:

<https://www.albany.edu/health_center/medicalexcuse.shtml>.

## Disability Policy

Reasonable accommodations will be provided for students with documented physical, sensory, systemic, medical, cognitive, learning and mental health (psychiatric) disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Disability Access and Inclusion Student Services (518-442-5501; [daiss@albany.edu](mailto:daiss@albany.edu)). Upon verification and after the registration process is complete, DAISS will provide you with a letter that informs the course instructor that you are a student with a disability registered with the DAISS and list the recommended reasonable accommodations. More info: <https://www.albany.edu/disability>

## Extra Credit

Extra credit can be earned in a number of ways. All require consultation with the instructor before they are commenced. All extra-credit opportunities are capped at no more than 10 points (10%) of your overall grade.

*Community:* CEHC sponsors several events throughout the semester. Any student who attends one or more of those events and sends the professor a one-paragraph reflections from the event may receive extra credit.

Other extra credit opportunities may be available. Details to follow.

## Withdrawal from the Course

The drop date for the Fall 2025 semester is Monday, December 8th for undergraduate students. That is the last date you can drop a course and receive a 'W'. It is your responsibility to take action by this date if you wish to drop the course. In particular, grades of "incomplete" will not be awarded to students because they missed the drop deadline.

## Cell phones

Please make sure your electronic devices are turned off before entering the classroom unless we are doing a class exercise where they are helpful. Use of phones, tablets, computers, etc. for non-class purposes during class will count against you in your class participation grade. While you may be using computers in class, texting, using Facebook, Instagram, Twitter, Threads, *etc*., are not appropriate uses of class time and your instructor-evaluated grade will suffer for it.

## Incomplete Grade Policy for Undergraduate Level

**Incomplete Grade Policy (amended effective Fall 2020 and will apply to all undergraduate Incompletes issued Fall 2020 and thereafter):**

I: Incomplete. A grade of I is a temporary grade assigned at the discretion of the instructor when a student has been unable to complete a class for reasons which are considered to be extenuating and beyond the student's control. These reasons must be documented at the time of the request. Incomplete grades do not count toward graduation.

Undergraduate students taking graduate level classes will be subject to the Graduate Incomplete Policy for the graduate class.

Incomplete grades should ONLY be assigned:

1. When a student makes a direct request to the instructor.
2. The student's work to date is passing.
3. An illness or other extenuating circumstance prevents completion of required work by the due date.
4. Required work may reasonably be completed in an agreed-upon period (not to exceed the maximum allowable time for the completion of work as stated in the Timeline for Incomplete Grades), and does not require the student to retake any portion of the class.

If all of the above four criteria are not met, the student should be graded according to the work completed for the class, even if this means recording a failing grade.

Students and instructors should be mindful that making up work can be extremely difficult given the workload of a new semester.

Incomplete grades should NOT be assigned:

* To students who do not make a direct request to the instructor
* As a substitute for a failing grade
* Where the student's performance to date clearly indicates an inability to complete the class as defined in the original syllabus
* If the student did not attend or stopped attending
* As a means of allowing a student to raise their grade by completing additional work not assigned to other students
* If re-enrollment is required for successful completion of the class

**Timeline for Incomplete Grades**

The maximum allowable time for the completion of work related to an Incomplete is:

* Fall and Winter: convert to failing grades in April of the following Spring semester – dates and deadlines to be communicated by the Registrar’s office
* Spring and Summer: convert to failing grades in November of the following Fall semester – dates and deadlines to be communicated by the Registrar’s office

Dates and deadlines will be listed on the Academic Calendar and communicated by the Registrar’s Office.

Instructors may require that work be completed in advance of the deadline.

Questions about incomplete grades should be addressed to the instructor. If an incomplete grade is agreed upon, the instructor is responsible for entering the incomplete grade in the grade roster during final grading, as well as changing the grade to a final grade by the incomplete grade deadline. See Guidelines for Instructors for more information on entering and changing grades. If an instructor is no longer available, the chair of the department or dean of the school/college, in which the class was offered, is authorized to supervise completion of the work and to submit the appropriate grade change request.

Any grade of I existing after the stated deadline shall be automatically changed to E or U according to whether or not the student is enrolled for A–E or S/U grading. Except for extenuating circumstances approved by the Office of the Vice Provost for Undergraduate Education, these converted grades may not be later changed.

(NOTE: Students receiving financial assistance through state awards should refer to Academic Criteria for State Awards in the expenses and financial aid section of this bulletin before requesting grades of I.)

*Important:* Incompletes will not be given to students who have not fulfilled their classwork obligations, and who, at the end of the semester, are looking to avoid failing the course. This is asking for special treatment.

## Academic Integrity

It is every student’s responsibility to become familiar with the standards of academic integrity at the University. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity. See <http://www.albany.edu/undergraduate_bulletin/regulations.html>

Course work and examinations are considered individual exercises. Copying the work of others is a violation of university rules on academic integrity.  Individual course work is also key to your being prepared and performing well on tests and exams. Forming study groups and discussing assignments and techniques in general terms is encouraged, but the final work must be your own work. For example, two or more people may not create an assignment together and submit it for credit. If you have specific questions about this or any other policy, please ask.

The following is a list of the types of behaviors that are defined as examples of academic dishonesty and are therefore unacceptable. Attempts to commit such acts also fall under the term academic dishonesty and are subject to penalty. No set of guidelines can, of course, define all possible types or degrees of academic dishonesty; thus, the following descriptions should be understood as examples of infractions rather than an exhaustive list.

* Plagiarism
* Allowing other students to see or copy your assignments or exams
* Examining or copying another student’s assignments or exams
* Lying to the professor about issues of academic integrity
* Submitting the same work for multiple assignments/classes without prior consent from the instructor(s)
* Getting answers or help from people, or other sources (*e.g.* research papers, web sites) without acknowledging them.
* Forgery
* Sabotage
* Unauthorized Collaboration (just check first!)
* Falsification
* Bribery
* Theft, Damage, or Misuse of Library or Computer Resources

*Any* incident of academic dishonesty in this course, no matter how "minor" will result in

* No credit for the affected assignment.
* A written report will be sent to the appropriate University authorities (*e.g.* the Dean of Undergraduate Studies)
* One of -
  + A final mark reduction by *at* *least* one-half letter grade (e.g. B ® B-, C- ® D+),
  + A Failing mark (E) in the course, and referral of the matter to the University Judicial System for disposition.

All course material and documents developed by the instructor are copyrighted and may not be reproduced or distributed without express written permission.

## Responsible Use of Information Technology:

<https://wiki.albany.edu/display/public/askit/Responsible+Use+of+Information+Technology+Policy>

## Style Manual and Guidelines

Written assignments should be word-processed and double-spaced. Students are required to cite sources, if any are used in their written work, according to the American Psychological Association (APA).

American Psychological Association. *2020. Publication manual of the American Psychological Association*, 7th Edition. Washington, DC: American Psychological Association.

Style manuals are available in the reference sections of many mainstream bookstores and reference sections of all 3 of the University Libraries. (BF 76.7 P83 2020)

[Purdue OWL](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html) provides guidance the construction of citations in APA style. It is based on the 7th edition of the Publication manual of the American Psychological Association. Individuals in the social science disciplines primarily use this style guide.

<https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/reference_list_books.html>

## Absence Due to Religious Observance

New York State Education Law (Section 224-a) - Campuses are required to excuse, without penalty, individual students absent because of religious beliefs, and to provide equivalent opportunities for make-up examinations, study, or work requirements missed because of such absences. Faculty should work directly with students to accommodate religious observances. Students should notify the instructor of record in a timely manner.

## Time Management

For every credit hour that a course meets, students should expect to work 2 additional hours outside of class every week (3 x 2= 6). For a three-credit course you should expect to work 6 hours outside of class every week. Manage your time effectively to complete readings, assignments, and projects.

## Instructor Availability

The instructor will be available for student consultation during office hours, by appointment, and online in Brightspace. Students are expected to check Brightspace messages (internal) at least once every day to see whether the instructor is trying to reach them. Students should not assume that instructor is online 24 hours a day, 7 days a week, to answer your questions immediately (even though the instructor will try to do so as much as possible) – expect that a response could take up to 48 hours.

## Courtesy

In class (and online) discussions the instructor and students are expected to demonstrate professional behavior. This means cooperating and interacting in a courteous, supportive, and tactful manner based on mutual respect for each other's ideas.

**Students and professor should be professional at all times. Faculty should be addressed as Prof. XXX or Dr. XXX. Emails should be addressed “Dear…” and end with a “Thank you.” *Disrespect in any form in any CEHC class will not be tolerated.***

## Respect for Diversity

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.[[1]](#footnote-1)

1. Respect for Diversity statement from <https://www.brown.edu/sheridan/teaching-learning-resources/inclusive-teaching/statements> [↑](#footnote-ref-1)