

**Web Site Design and Programming**

**CS 205**

**Spring 2021**

* 3 credits
* Prerequisite: CS 111
* Instructor: [Brother David Carlson](https://cis.stvincent.edu/cis/FacultyInfo/BrDavid.php)
* Office: Dupre Science Pavilion, Tenley Hall W217
* Office hours via Zoom, email, phone, or socially distanced in the atrium. Email me if you want to request a Zoom meeting.
  + Mon 2:00 pm - 4:30 pm
  + Tue 8:45 am - 11:20 am
  + Tue, Thurs 2:30 pm - 4:30 pm
  + and by appointment
* The CIS lab in W214 of the Dupre science complex will be available according to a schedule that will be posted after classes start. The CIS tutors often work in this room (or by Zoom).
* Phone: 724-805-2416
* Email: [david.carlson@stvincent.edu](mailto:david.carlson@stvincent.edu)
* Class Times and Location
  + Mon, Wed, Fri 8:30 am - 9:20 am, Dupre W214
* Date of Final Exam (used for final project presentations)
  + Wed, May 19, 8:30 am - 10:30 am

**Course Description**

This introduction to web development and web programming is intended for both CIS majors and non-majors. Topics include basic aspects of good web design and introductions to technologies that add functionality such as HTML 5, cascading style sheets, JavaScript, the document object model, XML, PHP, Ajax, and the MySQL database. An introductory background in programming, as provided by CS 111, is required to take this course. That is so that you will be able to understand programming in JavaScript, PHP, etc.

Required Text and Other Materials

Text: Web Programming and Internet Technologies, 2nd ed., Scobey, Porter and Lingras, Pawan; Jones & Bartlett Learning (2018), ISBN 978-1-284-07068-2 and similar ISBNs. Either the print edition or the e-book is acceptable. Be sure to get the 2nd edition.

You will also need some software: ssh and ftp clients, GIMP 2 to process images. This software is provided in W214. Contact Br. David if you want to get some of this software for your PC.

**Course Learning Objectives**

|  |
| --- |
| By the end of the course, students will be able to:   1. Apply basic principles of good web design, including principles for usability, testing, and security. 2. Write good HTML that passes validation. 3. Write good JavaScript, PHP, and cascading style sheets, as well as be able to use the DOM, Ajax, and MySQL effectively in web development. 4. Articulate how ethical principles sometimes apply in web development. |

**Relevant CIS Department Student Learning Outcomes**

By the time of graduation, the CS, IS, or Cybersecurity major will have:

|  |
| --- |
| 1. An ability to analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions. 2. An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline. 3. An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles. |

Course Schedule

Due dates and other details for assignments are posted in Schoology. The schedule below merely attaches assignments to the approximately correct spot in the course. Most assignments require your work to be posted on the department's live Linux web server. In fact, most of your work should be created on that server.

| Date | Topic | Assignment/Exam |
| --- | --- | --- |
| Wk 1, Feb 8 | syllabus, Ch 1 Background |  |
| Wk 1, Feb 10 | Ch 2 Web Presence, Web design principles |  |
| Wk 1, Feb 12 | Ch 3: HTML 5, Why write our own html tags? | Homework 1 due |
|  |  |  |
| Wk 2, Feb 15 | Using SecureCRT/FX, Ch 3: HTML 5 | Homework 2 due |
| Wk 2, Feb 17 | Ch 3: HTML 5 and XHTML, HTML validation |  |
| Wk 2, Feb 19 | Ch 3: HTML 5, validation exercise (homework 4) | Homework 3 due |
|  |  |  |
| Wk 3, Feb 22 | Ch 3 HTML 5, web monitor | Homework 4 due |
| Wk 3, Feb 24 | Ch 4: Cascading Style Sheets |  |
| Wk 3, Feb 26 | Ch 4: Cascading Style Sheets | Homework 5 due |
|  |  |  |
| Wk 4, Mar 1 | Ch 4: Cascading Style Sheets, Box model |  |
| Wk 4, Mar 3 | Break: No class |  |
| Wk 4, Mar 5 | Two-column format, CSS examples |  |
|  |  |  |
| Wk 5, Mar 8 | Ch 5: HTML Forms | Homework 6 due |
| Wk 5, Mar 10 | HTML Forms, Dangers of input controls |  |
| Wk 5, Mar 12 | Ch 6: JavaScript, Review |  |
|  |  |  |
| Wk 6, Mar 15 | Exam 1 covers Ch 1, 2, 3, 4, 5 | Exam 1 |
| Wk 6, Mar 17 | Ch 6: JavaScript |  |
| Wk 6, Mar 19 | Ch 6: JavaScript | Homework 7 due |
|  |  |  |
| Wk 7, Mar 22 | Ch 6: JavaScript |  |
| Wk 7, Mar 24 | Ch 6: JavaScript, Form validation |  |
| Wk 7, Mar 26 | Ch 6: JavaScript, Form validation |  |
|  |  |  |
| Wk 8, Mar 26 | Useful JavaScript examples |  |
| Wk 8, Mar 26 | Ch 8: PHP | Homework 8 due |
| Wk 8, Mar 26 | Ch 8: PHP |  |
|  |  |  |
| Wk 9, Mar 29 | Ch 8: PHP and Ajax |  |
| Wk 9, Mar 31 | Ch 8: PHP, GET and POST methods |  |
| Wk 9, Apr 2 | Break: No class |  |
|  |  |  |
| Wk 10, Apr 5 | Ch 8: PHP, PHP image viewer |  |
| Wk 10, Apr 7 | Ch 8: PHP security, Cross-site scripting attacks |  |
| Wk 10, Apr 9 | Ch 9: MySQL |  |
|  |  |  |
| Wk 11, Apr 12 | Ch 9: MySQL, SQL Injection attacks | Homework 9 due |
| Wk 11, Apr 14 | Ch 9: MySQL |  |
| Wk 11, Apr 16 | Ch10: PHP and MySQL |  |
|  |  |  |
| Wk 12, Apr 19 | Ch10: PHP and MySQL |  |
| Wk 12, Apr 21 | Ch10: PHP and MySQL |  |
| Wk 12, Apr 23 | Ch10: PHP and MySQL |  |
|  |  |  |
| Wk 13, Apr 26 | Ch 11: Intro to XML, JSON; Ch 12: Visitor data | Homework 10 due |
| Wk 13, Apr 28 | Final project work |  |
| Wk 13, Apr 30 | Exam 2 covers Ch 6, 7, 8, 9 and some earlier items | Exam 2 |
|  |  |  |
| Wk 14, May 3 | Final project work |  |
| Wk 14, May 5 | Final project work |  |
| Wk 14, May 7 | Final project work |  |
|  |  |  |
| Wk 15, May 10 | Final project work |  |
| Wk 15, May 12 | Final project work |  |
| Wk 15, May 14 | Final project work |  |
|  |  |  |
| Wk 16, May 19 | Final (Project Presentations) 8:30 - 10:30 am | Final Project due 8:30 am |

Course Requirements and Grading

* 25% First Exam
* 25% Second Exam
* 15% Regular Homework
* 25% Final Project
* 10% Project Presentation

Letter grades will be assigned according to the scheme found in the current College Bulletin. Exams will be announced in advance and (assuming that we have not had to switch to online classes) will be closed-book, pencil and paper exams in nature, except that you may use one two-sided 8.5 in. x 11 in. page of notes of any kind. Thus, on exams, only the test paper, calculators, the one page of notes, pens, pencils, and erasers may be used. Cell phones, tablets, laptops, PCs, and similar devices should be turned off and put away. Calculators may be used on exams but are not to be shared among students.

Homework and projects will be graded using the following rubric:

|  |
| --- |
| * 60% Correctness (meets its specifications) * 10% Good program design * 10% Clarity, style, and readability * 10% Good documentation * 10% Efficiency |

The homework in this class generally involves writing web pages using html, css, javascript, php, etc., often in a Linux environment. It often requires careful work and cannot be completed in one sitting. **Work on your homework over the week or so before each is due -- not at the last minute.** Plan to have each project done early so that there will be time to test it and to fix the problems that testing usually reveals. That also gives you time to ask the instructor for assistance. Note that a web project nearly always takes longer than you expect! Last minute attempts are bound to fail. That holds true whether you are working on a huge website or a project in this course. **Projects must be done separately by each individual** unless the instructor tells you otherwise. **Do not ask a fellow student in the class how to solve the problem or ask to see that person's code, as that is plagiarism!** You may consult only the tutors or the instructor for web project help.

Watch Schoology for details of assignments, their due dates, etc.

Make-up exams are discouraged. If possible, take the regularly scheduled exam. However, see your instructor ahead of time if you know you must miss an exam and consult with your instructor for any other situations involving missing an exam.

**CIS Department Policies**

As much as possible, the CIS Department faculty intend to keep a traditional lecture schedule this semester. Bear in mind, policies may change during the semester as the covid situation changes. Please refer to the Department’s website for the latest information. Here are our policies:

* We will provide normally scheduled lectures. Depending on the class, we may offer synchronous on-line lectures, recorded lectures, or some other format. Faculty will provide specific instructions for their classes in their syllabi.
* Given lecture-room capacity limitations due to the College’s covid response, you may be asked to attend in-class lecture only once or twice per week. For all other lectures, you must attend the synchronous, on-line lecture for your class.
* If you cannot attend synchronous, on-line lectures, the faculty will accommodate you. The form of accommodation will vary among classes. The faculty will **not** normally publish lecture recordings.
* Usually, assignments will be distributed and collected through Schoology. Some classes, however, may use different websites for homework and projects. (In CS 205 your homework is typically web pages which you install on the department's Linux web server.)
* The College has allowed office hours and group meetings (e.g., research, senior-project teams) to be held via Zoom. Check the syllabus for your class to determine how and when office hours will be held. Faculty will make available in their syllabi both the methods and times when they will be available for office hours. Please use those hours!
* Tutoring and CLP sessions will be delivered via Zoom. Schedules will be posted on the department’s website <https://cis.stvincent.edu> .
* Please use the same seat throughout the term to minimize contamination and to aid faculty in taking attendance. Faculty must take attendance in each class for contact tracing if there is a covid case on campus. Attendance policies are given in the course syllabus. Please read it.
* When working in teams, remember to follow the College’s policies for distancing and masks.

Course Policies

Academic Honesty Policy

Saint Vincent College assumes that all students come for a serious purpose and expects them to be responsible individuals who demand of themselves high standards of honesty and personal conduct. Therefore, it is college policy to have as few rules and regulations as are consistent with efficient administration and general welfare. **Fundamental to the principle of independent learning and professional growth is the requirement of honesty and integrity in the performance of academic assignments, both in the classroom and outside, and in the conduct of personal life. Accordingly, Saint Vincent College holds its students to the highest standards of intellectual integrity and thus the attempt of any student to present as his or her own any work which he or she has not performed or to pass any examinations by improper means is regarded by the faculty as a most serious offense**. In any case of academic dishonesty, the faculty member together with the Assistant Vice President for Student Success and Retention, who confers with the student, decide on the appropriate sanction. Depending on the seriousness of the offense, possible sanctions are failure for the assignment, failure for the course, suspension or expulsion. If a student receives the sanction of a failure for the course during the withdrawal period and drops the course, a WF will be recorded on the transcript.

**In this course, students are expected to do entirely their own work on the project, exams, and homework (unless a group homework is assigned).** Every assignment should list all sources that contributed to the solution. This would include the individual student (or the group members if we do some small group work). It may also include the instructor, a reference book, a web site, etc. Web sites or people that simply give you a solution to an assignment are **not** to be used. You may consult other students who are not our tutors **only** to clarify what the project assignment is asking. If you need assistance beyond simple clarification of the description of the assignment, consult the instructor or one of our tutors. Although tutors may well be helpful, only the instructor is likely to know the full details of the project. **You may not look at the project code for another student in this course or show yours (even a part of it) to another student in the course. You may not work out the design or code for a project with one or more persons other than the tutors and the instructor. If you break one of the conditions spelled out here, then this is a case of academic dishonesty**. See above for how this gets handled and the possible consequences.

*Appropriate Academic Use of Recordings*

Please be advised that elements of this course may be recorded for the sake of students in need of certain accommodations. This recording may include any contributions you make during the class sessions by answering/asking questions or making presentations. If you have concerns about being recorded, please contact your professor before class to discuss those concerns and the possibility of other ways that you might contribute.

All students are expected to use recorded course material only for their own personal academic use. Recorded content may not be shared with others outside of the course, unless the instructor has given explicit permission for the student to do so.

Violations of this policy will be reported to and addressed by the Office of Student Conduct. Behavior that constitutes a violation of academic integrity will also be reported to Academic Affairs as such and may incur additional sanctions.

Attendance Policy

Saint Vincent College recognizes that the current pandemic situation complicates face-to-face attendance for many students. The tradition of face-to-face classes is at the heart of a liberal arts education and we value the way that being physically present in the same space promotes dynamic interactions and community building. As such, we are making these opportunities available as much as possible. At the same time, in order to minimize risk of disease transmission, SVC has modified classroom arrangements and instructors are modifying their modes of instruction to make the best and safest use of space, while also utilizing technology-based modes of instruction that have been shown to meet our learning objectives. The Saint Vincent policy for Fall 2020 and Spring 2021 is that no student can be penalized for not being physically present in a classroom.  Each instructor will establish a course-specific attendance contingency plan that incorporates alternative modes of instruction and attendance for students who are required to quarantine, or who have secured accommodations through Ms. Marisa Carlson, the Director of COVID-19 Accommodations.

In this course, students who cannot attend in-person classes for any reason should attend virtually through the live Zoom conference. If, for a good reason, a student cannot attend in-person or by means of the live Zoom conference, a recording of the conference may be made available to that student, but recordings are not normally made available to the class.

* Each unexcused class absence after the first 4 results in 1 percentage point being deducted from the final course grade.
* Arriving late for class or leaving early (without a proper excuse) is counted as 1/2 of an absence.
* An unexcused absence from an exam results in the failure of the course.
* Unexcused absence from more than one-third of the semester's classes results in the failure of the course.
* Attendance is used to decide borderline grades at the end of the semester.
* Late work is not normally accepted, but partial credit is given for incomplete work that is submitted on time.
* Email me if you must miss class (in-person or online) for any reason, whether it is due to an illness or some other issue. It is always best to let me know instead of leaving me to wonder why you were not in class.
* Because of the possibility of the covid-19 virus, the flu, or other communicable diseases affecting us on campus, please practice good hand washing, wearing of masks, staying at least 6 feet apart, etc. If you get ill, please notify me and follow good medical advice and college policy. Check with me about what you miss. You are still responsible for all course material, but an incomplete grade can be given if you cannot finish the course in the given time frame. See the Saint Vincent College Covid-19 Updates at <https://www.stvincent.edu/resources/covid-19-updates/index.html> .

Class Cancellation Policy

If the instructor needs to cancel class, every effort will be made to send an email message to students' Saint Vincent email accounts and/or to place a note on the course Schoology page.

Classroom Etiquette

An essential characteristic of Saint Vincent College is the dignity and civility with which students and instructors conduct themselves both inside and outside the classroom. All students share in the responsibility of making the classroom, whether physical or virtual, a positive place to learn. Attendance is more than just being in the classroom or logged in to the course. Students are expected to be prepared, attentive, and respectful of others.

*Accessibility Statement for Students with Disabilities*

Students with disabilities who may be eligible for academic accommodations and support services should contact Ms. Marisa Carlson, Assistant Dean of Studies, by email (marisa.carlson@stvincent.edu) to schedule a meeting. Reasonable accommodations do not alter the essential elements of any course, program, or activity. The Notification of Approved Academic Accommodations form indicates the effective date of all approved academic accommodations and is not retroactive.

Title IX Statement

Saint Vincent faculty are committed to helping create a safe learning environment for all students and for the college as a whole. If you have experienced any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, intimate partner (dating or domestic) violence, sexual exploitation, or stalking, know that help and support are available. Saint Vincent College has staff members trained to support students in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The College strongly encourages all students to report any such incidents.

Please be aware that all Saint Vincent employees (other than those designated as confidential employees such as counselors, clergy and healthcare providers) are required to report information about such discrimination and harassment. This means that I have a mandatory duty to report to the Title IX Coordinator any information I receive about possible sexual misconduct.  This includes information shared in class discussions or assignments, as well as information shared in conversations outside class.  The Title IX Coordinator will contact you to inform you of your rights and options and connect you with support resources, including possibilities for holding accountable the person who harmed you. Know that you will not be forced to share information and your level of involvement will be your choice. The purpose of reporting is to allow Saint Vincent to take steps to ensure that you are provided with any necessary resources needed and to provide a safe learning environment for all.

The College’s Title IX Coordinator is:

Eileen K. Flinn, Esq.

Saint Vincent College

Second Floor, Alfred Hall

724-805-2897

The College also has confidential resources available, who can provide assistance to those who have experienced sexual misconduct without triggering a mandatory reporting duty.  More information about confidential resources is available on the [Saint Vincent Student Life page](https://www.stvincent.edu/student-life/title-ix).

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Campus Ministry at 724-805-2350 or the Wellness Center in the Carey Student Center at 724-805-2115. For more information regarding your rights and options, please see the Sexual Misconduct and Harassment policy which can be found on the MySV portal under Quick Links or on the [Saint Vincent Student Life page](https://www.stvincent.edu/student-life/title-ix).