General Education Course Inclusion Proposal

INTEGRATIVE THINKING

This proposal form is intended for departments proposing a course for inclusion in the Northern Michigan University General Education Program. Courses in a component satisfy both the Critical Thinking and the component learning outcomes. Departments should complete this form and submit it electronically through the General Education SHARE site.

Course Name and Number: CS 101 - Web Site Construction

Home Department: Mathematics and Computer Science

Department Chair Name and Contact Information (phone, email): J.D. Phillips (227-2020,jophilli@nmu.edu)

Expected frequency of Offering of the course (e.g. every semester, every fall): every semester

Official Course Status: Has this course been approved by CUP and Senate? YES

Courses that have not yet been approved by CUP must be submitted to CUP prior to review by GEC. Note that GEC is able to review courses that are in the process of approval; however, inclusion in the General Education Program is dependent upon Senate and Academic Affairs approval of the course into the overall curriculum.

Overview of course (please attach a current syllabus as well): *Please limit the overview to two pages (not including the syllabus)*

A. Overview of the course content

This course covers all facets of web site construction, from the creation of a web site's content to the use of HTML, Javascript, and CSS Style Sheets. Audio and video formats are explored. Legal issues are covered.

B. Explain why this course satisfies the Component specified and significantly addresses both learning outcomes

Critical Thinking:

Evidence: In writing web code, students have to decide which syntax and strategies that may have been learned in class are appropriate for writing a particular program. This is not obvious and requires significant consideration of alternatives.

Integrate: All programming requires this. A student must be able to develop a strategy to solve a certain problem. Each problem is unique and must be solved by applying fundamental skills in a novel setting. Problem solving techniques are covered in class, but on exams and on programming assignments, students must be able to integrate their own analysis of the given problem with the techniques given in class.

Evaluate: Students have to be able to tell that their web site will appear as anticipated and that interactive web sites will perform as expected. In part, this can be done by testing the web site, but it is also critical that students develop a mental model of the web site, evaluate the code symbolically in their mind, and convince themselves that the web site will perform to specification.

Integrative Studies:

Connections Across Disciplines: Web site construction is, at its heart, a combination of programming skills and graphic design. Additionally, informational web sites contain natural language text and so a facility in writing appropriate text in natural language is necessary for success.

Transfer: Students develop a variety of basic fundamental programming skills (e.g. writing loops, if statements, and designing procedures in JavaScript as well as HTML layout code) and apply and combine these concepts to more advanced settings. In addition, programming techniques described in one setting are then tested in other settings. Exams do not call for the student to regurgitate in class programs but to use the programming techniques learned in class and from assignments to different web sites, specific to the exam problem and not necessarily something they have already done or seen in class.

Integrated Communications: The programming component alone is a integration of three distinct languages (HTML, JavaScript, and CSS). Designing web sites involves integrating text with graphics with multimedia and presenting it in an aesthetically pleasing format.

C. Describe the target audience (level, student groups, etc.)

This class is designed for students of all majors. It is an introductory course.

D. Give information on other roles this course may serve (e.g. University Requirement, required for a major(s), etc.)

It is not presently required for any major.

E. Provide any other information that may be relevant to the review of the course by GEC

PLAN FOR LEARNING OUTCOMES
CRITICAL THINKING

Attainment of the CRITICAL THINKING Learning Outcome is required for courses in this component. There are several dimensions to this learning outcome. Please complete the following Plan for Assessment with information regarding course assignments (type, frequency, importance) that will be used by the department to assess the attainment of students in each of the dimensions of the learning outcome. Type refers to the types of assignments used for assessment such as written work, presentations, etc. Frequency refers to the number of assignments included such as a single paper or multiple papers. Importance refers to the relative emphasis or weight of the assignment to the entire course. For each dimension, please specify the expected success rate for students completing the course that meet the proficiency level and explain your reasoning. Please refer to the Critical Thinking Rubric for more information on student performance/proficiency in this area. Note that courses are expected to meaningfully address all dimensions of the learning outcome.

DIMENSION	WHAT IS BEING ASSESSED	PLAN FOR ASSESSMENT
Evidence	Assesses quality of information that may be integrated into an argument	Task Type: Web Site Assignments: Every web site will require students to choose the material they have learned in class that they believe will be relevant to completing the program. Frequency: Approximately ten times per semester Importance: Approximately 50% of the grade Expected Proficiency: 75% Task Type: Quizzes & Exams: Every examination and at least 80% of all quizzes will require students to choose the material they have learned in class that they believe will be relevant to designing and coding an appropriate web site. Frequency: Approximately ten times per semester. Importance: Approximately 50% of the grade Expected Proficiency: 75%
Integrate	Integrates insight and or reasoning with existing understanding to reach informed conclusions and/or understanding	Task Type: Web Site Assignments: Every program will require students to integrate their analysis of the problem with the programming and design strategies they have learned in class to create a functional program. Frequency: Approximately ten times per semester Importance: Approximately 50% of the grade Expected Proficiency: 75% Task Type: Quizzes & Exams: Every examination and at least 80% of all quizzes will require students to integrate their analysis of the problem with the programming and design strategies they have learned in class to create a functional and aesthetic web site (on paper). Frequency: Approximately ten times per semester. Importance: Approximately 50% of the grade Expected Proficiency: 75%

Evaluate	Evaluates information, ideas, and activities according to established principles and guidelines	Task Type: Web Site Assignments: Every web site will require students to test their site to verify that it works properly. Frequency: Approximately ten times per semester Importance: Approximately 50% of the grade Expected Proficiency: 75% Task Type: Quizzes & Exams: Every examination and at least 80% of all quizzes will require students to carefully examine their own code and to model it on paper to demonstrate that their web site would work if it had been typed in. Frequency: Approximately ten times per semester. Importance: Approximately 50% of the grade Expected Proficiency: 75%

PLAN FOR LEARNING OUTCOMES
INTEGRATIVE THINKING

Attainment of the INTEGRATIVE THINKING Learning Outcome is required for courses in this component. There are several dimensions to this learning outcome. Please complete the following Plan for Assessment with information regarding course assignments (type, frequency, importance) that will be used by the department to assess the attainment of students in each of the dimensions of the learning outcome. Type refers to the types of assignments used for assessment such as written work, presentations, etc. Frequency refers to the number of assignments included such as a single paper or multiple papers. Importance refers to the relative emphasis or weight of the assignment to the entire course. For each dimension, please specify the expected success rate for students completing the course that meet the proficiency level and explain your reasoning. Please refer to the Rubric for more information on student performance/proficiency in this learning outcome. Note that courses are expected to meaningfully address all dimensions of the learning outcome.

DIMENSION	WHAT IS BEING ASSESSED	PLAN FOR ASSESSMENT
Connections to Experience *OR* **Connections to Discipline**	Connects academic knowledge to experiences Makes connections across disciplines	Task Type: Web Site Assignments: Every web site will require students to design to combine graphic design with coding. Frequency: Approximately ten times per semester Importance: Approximately 50% of the grade Expected Proficiency: 75% Task Type: Quizzes & Exams: Every examination and at least 80% of all quizzes will require students to combine graphic design with coding. Frequency: Approximately ten times per semester. Importance: Approximately 50% of the grade Expected Proficiency: 75%
Transfer	Adapts and applies skills, abilities, theories, or methodologies gained in one situation to new situations	Task Type: Web Site Assignments: Every program will require students to design a new web site using methodologies developed in a different, usually simpler, setting. Frequency: Approximately ten times per semester Importance: Approximately 50% of the grade Expected Proficiency: 75% Task Type: Quizzes & Exams: Every examination and at least 80% of all quizzes will require students to design a new web site using methodologies developed in a different, usually simpler, setting.

		Frequency: Approximately ten times per semester. Importance: Approximately 50% of the grade Expected Proficiency: 75%
Integrated Communication	Communicates complex concepts by choosing appropriate content and form	Task Type: Web Site Assignments: Every program will require students to translate mathematical, geometric, aesthetic and/or other concepts to a web site, involving multiple computer languages and multimedia. Importance: Approximately 50% of the grade Frequency: Approximately ten times per semester Expected Proficiency: 75% Task Type: Quizzes & Exams: Every examination and at least 80% of all quizzes will require students t to translate mathematical, geometric, aesthetic and/or other concepts to a web site using multiple computer languages and (on paper) involving multimedia. Frequency: Approximately ten times per semester. Importance: Approximately 50% of the grade Expected Proficiency: 75%

CS 101
Introduction to Computer Science

Ken Culp
Jamrich 2224

Introduction and Objectives:

The objective of CS101 is to give the student a basic understanding of the Internet and the necessary skills to create interactive web pages. Since this class meets the Formal Communication Requirement (see below), it qualifies as a substitute for a foreign language like French or Spanish. The reason this class qualifies as a substitute is because it covers the grammar syntax and vocabulary of three computer languages: HTML, CSS, and JavaScript. HTML (**H**ypertext **M**arkup **L**anguage) is used to create simple, static web pages with minimum formatting options. To the HTML, **C**ascading **S**tyle **S**heets (CSS) are added to format page content and define layout patterns for selected pages or entire web sites. Finally, interactivity is added to the page with JavaScript. The first half of the class will cover HTML and CSS and the last half will cover JavaScript.

Students will be using a robust text editor to create the pages but not using a graphical editor like **Dream Weaver**. These pages will be viewed and tested within a web browser (Internet Explorer, Firefox, etc.) running on their own laptop. No server-side code will be developed in this class. Server-side code is the subject of other Computer Science classes.

Prerequisite:

There are no classes needed as a prerequisite for this class. Students, however, need a basic understanding of computers including Email and the ability to create and manage folders (directories) and files on their computer.

Required materials:

- Web Design Principles, by Ken Culp. ISBN: 978-1-935715-07-8
- A laptop with the appropriate text editor installed. For details on editors, see the Introduction section of the text (page 2). You can use your own laptop if you like but some functions that will be used in this class are pre-configured on the NMU-issued laptop.

Online Resources:

The following web sites augment content covered in the text and in class.

- `Class Website`: This site as a variety of links as well as office hours, tutoring information, and other resources.
- `W3 Schools Tutorials`: This class covers two major tutorials from this site: HTML Tutorial, and CSS Tutorial. From the HTML Tutorial, study all **Basic** topics except **Frames** and **Quick Lists** from this site. From the CSS tutorial study the **Basic**, **Styling**, and **Box Model** sections. You will be assigned various tutorials as we progress through the study of HTML and CSS.
- `HTML Dog Tutorials`: This is an optional, second site that duplicates most of the w3Schools information but with a different presentation style and a slightly difference sequence. Study HTML **Beginner/Intermediate** as well as CSS **Beginner/Intermediate**.
- **Detailed HTML Syntax Checker**: Use this site to validate your HTML homework for errors. It is very detailed and the errors can be hard to read.
- **Simple HTML syntax checker and source highlighter**: Use this site for a quick check or your html homework. The site can also be used to beautify (format) your html by indenting nested html elements.
- `Source Viewer`: Use this link to try the examples in the text. From this site, you can also download the HTML and CSS source for the examples.
- `HTML Reference`: Complete HTML reference (use as needed).
- `CSS Reference`: Complete CSS reference (use as needed).

Assignments and Study Techniques:

Reading assignments and exercises will be made regularly from the text. Tutorial exercises will also be made almost daily from the first web site listed above (W3Schools). You should work through all these assigned tutorials with your text editor open. Type in what you see in the tutorial into your own web page and see what happens when the page is viewed in the browser. The objective is to try each technique described. The only way to learn the material is to practice what you see presented in class, in the book, and in the tutorials. **Note:** ***You cannot learn the material nor pass the exams if all you do is read the text and tutorials!*** Take notes as you work through the text and highlight important information. Note in particular that content about which you have a question. For best results, keep your class notes and homework in a loose-leaf notebook which you bring to class each day.

Homework will be assigned frequently with specific due dates. If the assignment is not submitted by the due date, there will be a 20% late penalty up until the final cutoff date after which a zero will be recorded. Given that homework constitutes almost 20% of your total course grade, missing several assignments will significantly lower your final grade. The best policy is to complete the assignments the day they are made and upload them immediately. Note that the assignments are relatively easy, taking less than 30 minutes (except for the projects which count more points as noted in the grading system below). In many cases, you will have time during the frequent lab sessions to do the homework and upload it. If you start missing assignments, ***I will make you to come in for office hours and work on your assignments!***

This course satisfies the Formal Communication Studies requirement:

This course is designed to introduce students to the ways in which information and ideas are expressed using a communication system other than English. Such courses should foster the student's ability to conceptualize and communicate in an orderly, rational manner. Characteristics of a communication system include: 1) possession of a grammar; 2) operation from an established set of rules; 3) reasoning properties such as deduction, inference drawing and problem solving. This includes courses in languages and those in which the central focus of the course is on statistics, computers or formal logic.

Attendance:

Attendance is required and will be checked daily. If there is a class exercise that day, you will receive a zero unless you can document an excused absence. Also, you may miss material that would later appear on an exam. Thus, you are responsible for keeping up with assignments. Use e-mail to advise me when you know in advance that you will miss class.

Outcomes and Assessment:

At the end of this class students should be comfortable developing a multi-page web site that is styled by both internal and external style sheets. In addition, students should have a basic understanding of how to add validations and interactivity to web sites using JavaScript. Mastery of the content and achieving the desired outcomes will primarily be measured by the two major projects (HTML and JavaScript). However, to insure the projects are developed by each individual student, two major exams will be given that cover the content included in the projects.

Lecture and Lab Sessions:

Class will consist of both lecture and lab time. During the labs, you will be given specific assignments that illustrate the content being covered. Some of these assignments will be given as homework which will be uploaded to the internet (see Submitting Assignments below). Since you can get help from the instructor (and/or your peers) during the lab time, completing the assignments is relatively easy ***but only you come to class!***

Submitting Assignments:

Assignments will be uploaded to the Web. You will receive an email describing the assignment and including a link for uploading your work. You click the link and paste your assignment into the space provided. Once the assignments are graded, you will be able to see your grade and the grading notes online.

Quizzes:

Unannounced quizzes may be given at the **start** of any given class period. If you are late or have an unexcused absence, you receive a zero! Each quiz is worth 10 points and will usually consist of writing a short HTML program, a cascading style sheet, or a segment of JavaScript. These quizzes will be a simple application of material assigned from the online sites or from class notes and, occasionally, exactly duplicate a previous homework assignment. Quizzes cannot be made up. However, if you have an excused absence on the day of a quiz, the quiz will not count against you nor lower your grade.

Exams:

There will be two 100-point exams after each major section of material. Tests cover online material, homework, and concepts discussed in class. No test scores will be dropped. You must take tests and quizzes at their scheduled times. No make-up is possible for any exam unless you notify me **before** test time or have a **written**, valid excuse. A documented excuse is necessary in order to take a make-up test. Grades on quizzes and tests are not "curved." The exams cover material in the sequence shown below.

There is a practice exam available for each exam that, if studied well, should insure that you get at least a high B. An email will be sent out with a link to each practice exam but the links are given below in case you want to study ahead.

Exam 1: **HTML and Cascading Style Sheets (run the tutorials listed below)**

Chapters 1 through 4. If any of this is not be ready, it this will be covered in class.

`http://www.w3schools.com/html/default.asp` topics:

Introduction, Get Started, Basic, Elements, Attributes, Headings, Paragraphs, Formatting (Text Formatting only), Styles, Links including Mail, Images (skip Image Map items), Tables, Lists, (skip remaining items under Basic HTML).

`http://www.w3schools.com/css/default.asp` topics:

Introduction, Syntax, How To, Text (Color, Background Color, Align Text, Indent), Font (Font, Size, Style, Bold), List, Table. Check out the following for examples for HTML and CSS:
`http://www.w3schools.com/html/html_examples.asp`
`http://www.w3schools.com/css/css_examples.asp`

- **Practice Exam:** `http://mathsql.nmu.edu/Support/NewContacts/EvalPage.aspx?ueid=69`
- **Practice Exam:** `http://mathsql.nmu.edu/Support/NewContacts/EvalPage.aspx?ueid=39`

Exam 2: **JavaScript.** This exam will serve as the final and will be given on the scheduled final exam date.

Chapter 5 through 8. Some of this material may not be covered depending upon our schedule.

`http://www.w3schools.com/js/default.asp` topics:

Introduction, How To, Where To, Statements, Variables, Operators (except `%`, `+=`, `-=`, `*=`, `/=`, `++`, and `--`), Popup boxes, If...Else, For Loop, While Loop, Events

`http://www.w3schools.com/css/default.asp` topic: Forms

- **Practice Exam:** `http://mathsql.nmu.edu/Support/NewContacts/EvalPage.aspx?ueid=40`

Class participation:

As noted above, if you want to succeed in this class, you need to do the work, attend class, and participate in class discussions. I will know those that are really trying and those that are not and it can affect your grade. If you are having trouble, I want you to ask for help and ask questions in class. The only stupid question is the one you failed to ask and then missed a problem on a quiz or test! If you are uncomfortable asking questions in class, send me an email.

How to get a good grade:

You must do all assignments! You are paying a substantial sum of money to take this class so you might as well get the most out of it. Any job worth doing is worth doing well. If you do your best and ask for help when you are in trouble, I will guarantee that you will pass the class. Specifically, if you are trying and doing the work, I will commit to providing you whatever extra help is needed; but you have to ask.

Also, really trying hard counts in your favor as noted below in the grading system (attitude). Truly, the more work you put in, the better grade you will make and the better prepared you will be for the exams.

How to study:

Once you have done the required assignments, study them carefully. You cannot prepare for an exam by simply looking at your homework. The only way to guarantee that you can reproduce the required HTML, CSS, and JavaScript is to try it. Having no notes or book open, start with a blank screen in your editor and recreate the appropriate the code and then test it. If you get stuck, check your notes or the text. Then, repeat this process (with no notes open) until you are creating the required code effortlessly and without errors. ***Do NOT arrive at a major test knowing that there is something you cannot do that has been assigned. Ask for help!***

Once you understand the basic methodology for solving the assignments, place yourself into a simulated exam environment to verify and cement your learning. Copy a sampling of projects of each type that will be on an exam to a blank piece of paper, close all your notes and books and previous work (nothing but a calculator) and work the projects. Alternately, write complex web pages and scripts; get outside the box and experiment. The more you write, the easier the exams and the final.

Approximate Grading System (there may be more or less quizzes or assignments)**:**

Approximately 10 short homework assignments at 10 points each	100 points	
Approximately 5 quizzes at 10 points each	50 points	
HTML Multi-Page web site project (resume or other topic)	50 points	(See page 89 of text)
HTML/CSS Exam	100 points	
JavaScript Order Form	50 points	(See page 183 of text)
JavaScript Exam (counts as final)	100 points	
Instructor Evaluation (mostly attendance but some attitude/effort)	50 points	
Approximate Total:	500 points	

To pass the course you must complete both projects and take both tests!

Contact Information:

Email kculp@nmu.edu
Phone: 227-1841

Office Hours (JXJ 2224): See class web site

Computer Science Lab (JXJ 2311):

Additional help will be available starting the second or third week of class in the Computer Science Lab (JXJ 2311). Assistance for your homework assignments will be available from a computer science student approximately two hours per week. Additional help will be available during class labs and office hours.

Students with Disabilities:

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2001 C. B. Hedgcock Building (227-1700). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.

Final Commitment:

You and I are a team in this class with the same objective – for you to learn the material and to receive a passing grade in the class. However we must work together as a team. Your job on our team effort is to give all assignments your very best effort AND ask for help when needed. My job is to insure that you learn the material. Do you part as noted above and I commit that you will pass.

However, don't take my commitment as meaning you can pass with minimum effort; it won't happen. You are responsible for you and no one else. If you do not succeed, you can blame no one but yourself. Therefore, make a commitment to yourself at this very moment that this class is worth passing and that you will give it your best effort! Together, as a team, you can expect an A!