# CSS 290 – Women in STEM

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| **Instructor**: Erin Hill, Ph.D. | Year __**2018**___ Quarter __**Spring**__ |
| **Email**: ehill07@uw.edu<br>You can expect a response within 48 hours except on weekends. | CSS __**290**__   SLN# _**12882**_<br>Credits __**3**__ |
| **Office Hours**: TBD or by appointment<br>**Location**:  Office (UW1-149) | Areas of Knowledge (VLPA, I&S, NW) __**I&S, DIV**_ |
| Course website: http://canvas.uw.edu<br>**CSS 290 A Sp 18: Topics in Computing** | Course meets:<br>**TTH   3:30-4:45pm   UW2-211** |

*"**The value of an education in a liberal arts college is not the learning of many facts but the training of the mind to think something that cannot be learned from textbooks."** – Albert Einstein in Philipp Frank's book "Einstein: His Life and Times"*

**Course Description:**
Many women feel outside of "science and engineering" and continue to be underrepresented in these fields. The purpose of this class is to explore challenges experienced by diverse women in science, technology, engineering, and mathematics (STEM), to discover multiple strategies to surmount those challenges, and to help give students the tools to persevere and succeed in their college and professional lives in STEM fields.

We will examine how categories of difference such as gender, race, class, and sexual orientation impact women in STEM both historically and currently. We will accomplish this through readings, videos, podcasts, constructive discussions, a STEM women panel, interviews, and scenarios.

- Your Role is to take responsibility for your learning through **vulnerability** and **curiosity.** You will be an active participant in your own learning and the learning of your peers:
    - Gather information outside of class from readings and online resources to prepare for class time.
    - Work in assigned teams of 3 on discussions, your interview, and final project.
    - Answer and ask "Why?", "What?", and "How?" questions; learning always begins with asking a question!
    - Constructively and respectfully discuss issues of STEM and gender and critique various viewpoints.
- My Role is to support you in your learning by providing you with structure and assistance to help you succeed: this syllabus, in-class questions, assignments, rubrics, facilitated discussions, office hours, and email responses.

Learning is messy, difficult, frustrating, exciting, joyful, and incredible. Learning is a process: you have to learn how to learn, therefore, I will try <u>NOT</u> to directly answer your questions right away. Instead, I will suggest directions – primarily through the use of questions – that you can explore to discover answers for yourselves and as a class. This can be very frustrating, but ultimately a more powerful learning experience. You all have the capacity to construct your own understanding, and to help others do the same!

<u>Why:</u> **I want you to gain transferrable skills that will set you up for success in the present and in your future.** Employing active learning techniques addresses more learning goals than can be done with lecture alone, and these expanded goals include ones that are not only important to your learning, and my teaching philosophy, but are specifically being asked for by employers (Hart Research Associates 2013). If, at any point, you're not sure why I'm asking you to do an activity or assignment, please ask me "why are we doing this?" If I determine that what I'm asking is busy work and does not help your learning in some way, I will change or remove it. The activities, readings, and helping others, will challenge your pre-existing understanding, find gaps in your knowledge, encourage you to reflect, structure, and re-structure your knowledge, and help you on your way to becoming a life-long learner and a responsible, global citizen.

**At the end of this course, students will be able to:**
1. Analyze self and societal constructs around gender in order to become more aware of historical and current challenges. [Bloom's Level: Analyzing]
2. Construct skills and knowledge that will help to surmount challenges faced and to be successful at UW Bothell and in a STEM career. [Bloom's Level: Creating]
3. Build a sense of community with women in STEM disciplines through formation of academic, professional, and social networks. [Bloom's Level: Creating]
4. Develop a deeper understanding of STEM careers from lived experiences of professionals and peers. [Bloom's Level: Understanding]

Bloom's Taxonomy: Originated in 1956 to identify and promote higher levels of thinking in education. (See Figure 1; Anderson et al. 2000).

**Class Structure:**
- The first 5 weeks will be used to research the general topics of: 1) History of Women in STEM; 2) Work/Life Balance; 3) Connecting, Networking, and Communicating; 4) Social and Cultural Issues for Women in STEM; 5) Self-Promotion. For each topic, we will create 1 to 2 questions to ask of the panel in week 6.
- The last 5 weeks will include a women in STEM panel, interviewing faculty or industry professionals, and creating scenarios.
- The scenarios you create will be peer-reviewed and performed at the end of the quarter.

<u>About Me</u>: I am passionate about student learning, particularly in relation to physics, and thoroughly enjoy assisting students in discovering their strengths, passions, and ability to learn anything to which they set their minds. I graduated from the University of California, Irvine with a Ph.D. in Physics. I am a Lecturer in STEM and spend most of my time teaching, and studying teaching and learning research that I use primarily to inform my teaching practices. I not only assign lifelong learning-related goals and outcomes to you, but regularly employ them in my own work and research. Learning is an iterative process that does not stop for anyone, including me and your other professors. We are all lifelong learners!

**Required Texts, Media, and Materials**

No textbook is required for this class. All resources: readings, podcasts, blogs, TED Talks, etc. are drawn from professional and academic resources, and are either on the Internet or linked through Canvas.

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**Grading Criteria:** Scores will not be curved. The percentage points out of 100% for the components of the class are as follows:
- 30% Reading and Reflection Assignments: Reading reflections (15%) and Tasks (15%)
- 25% Interview Assignment: Draft of interview questions (10%) and Final interview (15%)
- 30% Final Project: Scenario first draft for peer review, and second draft (10%), Reflections on, and discussions of, performed scenarios (5%), and Final scenarios (15%)
- 15% Participation in class discussions and activities, creating panel questions, and Teamwork scores

Graded work will be converted to a 4.0-scale using the following table:

| 100% - 95% = 4.0 | 86% = 3.1 | 77% = 2.2 | 67% - 66% = 1.3 |
|---|---|---|---|
| 94% = 3.9 | 85% = 3.0 | 76% = 2.1 | 65% = 1.2 |
| 93% = 3.8 | 84% = 2.9 | 75% = 2.0 | 64% = 1.1 |
| 92% = 3.7 | 83% = 2.8 | 74% = 1.9 | 63% = 1.0 |
| 91% = 3.6 | 82% = 2.7 | 73% = 1.8 | 62% = 0.9 |
| 90% = 3.5 | 81% = 2.6 | 72% = 1.7 | 61% = 0.8 |
| 89% = 3.4 | 80% = 2.5 | 71% = 1.6 | 60% = 0.7 |
| 88% = 3.3 | 79% = 2.4 | 70% = 1.5 | <60% = 0 |
| 87% = 3.2 | 78% = 2.3 | 69% - 68% = 1.4 | |

<u>Weekly Research, Reflections, and Tasks</u>: In the first 5 weeks, you will be required to read, watch, and/or listen to resources on the designated topic each week. You will reflect on the resources by writing a response on Canvas: one thing you understood, one thing that didn't make sense or that you would like to investigate further, a specific question to pose to your peers for in-class discussion, and one thing that you thought was interesting. Most importantly, you will write ***why*** you think what you do for each question. You will also be assigned tasks to accomplish related to the readings that you will report out on in class. Highest Bloom's Taxonomy Level: Applying.

<u>In-Class Discussions and Activities</u>: We will discuss your reflections, questions, and tasks in class in small-group and whole-class discussions to hear different viewpoints and to learn from and about one another. We will take time at the end of each discussion to create one to two questions about the topic(s) discussed to pose to the panel of STEM women in week 6. The questions will be voted on, on a Canvas discussion board. Your participation will take the form of thoughtful questions and answers (written and/or verbal), and completing activities individually, in small groups, and as a class. Highest Bloom's Taxonomy Level: Analyzing.

Panel: The STEM women panel will take place in week 6. The questions created in the first 5 weeks will be sent to the panelists ahead of time so that they can prepare responses. Each team will be responsible for asking one of the questions out loud of the panel. The end of the panel will

include general questions and answers if there's time. Highest Bloom's Taxonomy Level: Understanding.

Interview: The interview assignment will develop your communication skills, and will provide the opportunity to connect with STEM women professionals. We will learn some basic interviewing skills in class, practice them, draft interview questions, and then your team will select a professional to interview from the provided list. Your team can also have a professional added to the list if you get them approved by the 4th week by me. Your team will turn in a concise report of your interview on Canvas (see the assignment for details). Highest Bloom's Taxonomy Level: Applying.

Final Project - Scenario: In your teams, you will use your interviews, one academic article outside of those provided by the instructor, the research conducted in the first 5 weeks of class, and the panel experience to create a 5-minute scenario around a specific, women-in-STEM topic of your choice. The topic should be a subtopic of one of the 5 major categories from the first 5 weeks of class. You will additionally write a paragraph on how your resources informed the scenario you created. You will peer-review your scenarios and perform them at the end of the quarter. You will briefly introduce characters and any scene-setting necessary. You will turn in your script and your paragraph on Canvas. Each audience member will complete a reflection on each scenario in order to be prepared to discuss the topics and challenges presented in the scenarios. Additionally, these reflections will be turned in at the end of the presentations. The scenarios are intended to help us all dive deeper into the material and to directly analyze situations that may arise (or may have already arisen) in a safe space. We are not evaluating each other's acting skills. Highest Bloom's Level: Creating.

**Late policy:**
Reflections and Tasks: Late work will **NOT** be accepted. This work is preparatory for class, and therefore needs to be completed on time.

Interview Report: For each day the assignment is late, 10 percentage points will be removed, i.e., you can receive *up to* a max of 90% the day following the due date, 80% the day after that, etc.

Final Project - Scenario: Late work will **NOT** be accepted. Your drafts will need to be ready for peer review from your classmates, and for you to perform.

For any point-based activity or assignment missed due to an emergency: please speak to me via email or in person to discuss possibilities.

**Attendance/Participation Policy:** Participation is vital for a successful experience: please arrive on time for class and attend all class sessions! Due to the highly interactive nature of the class sessions, missing class means you will miss out on rich discussions. Contributing to class discussions regularly will help you succeed in college life and in your future career. In class, we will discuss ideas and you will interact with others in the class to advance your mutual understanding of those ideas. Late arrivals interrupt your peers' in-progress activities and discussions. You will also lose participation points. If you must miss a class session, get in touch with a classmate to catch up on what you missed.

**Classroom Conduct:** You will all be expected to follow the classroom norms listed below and any behavior agreed upon by your team in your team contracts.

- Approach your learning and class time with vulnerability and curiosity
- Respect individual differences, thoughts, and actions
- Help others <u>without</u> doing their work for them
- Only use technology in class for education reasons and not personal ones

Possible techniques to resolve challenges and/or conflict, e.g., if someone is not following the classroom conduct list above (student-created list in order of severity of disrespectful behavior):
- Use a word to indicate when words spoken have been hurtful, such as "ouch"
- Remind the class of the classroom norms or teamwork agreements
- Step outside of the class and take a breath/get a drink of water to maintain calm
- Discuss as a class and listen to, and try to understand different perspectives
- Instructor speaks to student(s) one-on-one
- Loss of participation points
- Instructor asks student(s) to leave class

**Working in Teams**: You will be placed into teams for the quarter for class discussion and to work on your interviews and scenarios. Research has shown that discussing and working through questions with your peers improves your learning (Crouch and Mazur 2001; Springer et al. 1999). To inform your work together, you will create **Teamwork Agreements**.

**Technology in the Classroom:** Use of technology for personal reasons during class is not only disruptive to the other students in your team, but prevents you from taking full advantage of class time to learn the material. Therefore, using *technology in class for personal reasons is banned*.

**Respect for Diversity:** Diverse backgrounds, embodiments and experiences are essential to the critical thinking endeavor at the heart of university education. At UW Bothell, students are expected to respect individual differences which may include, but are not limited to: age, cultural background, disability, ethnicity, family status, gender presentation, immigration status, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status.

Students seeking support around these issues can find more information and resources at http://www.uwb.edu/admissions/diversity-outreach.

**Incompletes:** University rules state that "an incomplete is given only when the student has been in attendance and has done satisfactory work until within two weeks at the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control."

**Schedule of course meetings, including exams and due dates for assignments:**
This schedule is <u>TENTATIVE</u> and subject to change (although I will try not to make changes).

| Week | Date | Workshop/Lab | Assignments DUE |
|------|------|--------------|-----------------|
| 1 | 3/27 & 29 | Intro & History of Women in STEM | Syllabus Quiz **on Canvas** <br> Teamwork Agreements and Team Names **in Class** |

| | | | Start the Work/Life Balance Task Reflections on Canvas Tasks on Canvas |
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| 2 | 4/3 & 5 | History of Women in STEM Work/Life Balance | Start the Connecting, Networking, and Communicating Task Reflections on Canvas Tasks on Canvas |
| 3 | 4/10 & 12 | Connecting, Networking, and Communicating | Reflection on Canvas Task on Canvas |
| 4 | 4/17 & 19 | Social and Cultural Issues for Women in STEM | Reflection on Canvas Task on Canvas Teamwork Assessment 1 |
| 5 | 4/24 & 26 | Self-Promotion | Reflection on Canvas Task on Canvas Select final project topic and email chosen interviewee on Canvas (group) |
| 6 | 5/1 & 3 | STEM Women Panel & Interview Skills | Panel Reflections in Class Read: chapter(s) on interviewing skills and complete Task on Canvas |
| 7 | 5/8 & 10 | Build and Practice Interviewing Skills Scenario writing | Rough draft of interview questions on Canvas (group) Final draft of interview questions on Canvas (group) Find an academic article for your final project (group) Write outline and character bios for scenario (group) |
| 8 | 5/15 & 17 | Scenario writing Peer review of drafts | Outline and character bios for scenario on Canvas (group) Academic Article assignment on Canvas (group) First draft of scenarios on Canvas (group) |
| 9 | 5/22 & 24 | Practice performance of scenarios and peer review Perform final scenarios | Interview Assignment on Canvas (group) Second draft of scenarios on Canvas (group) Final draft of scenarios on Canvas (group) |
| 10 | 5/29 & 31 | Perform final scenarios | Teamwork Assessment 2 on Canvas |
| 11- Finals | 6/5 | Perform final scenarios – 2 hours if needed | Submit Reflections on Scenarios in Class |

**Academic integrity:** See http://www.uwb.edu/studentservices/academicconduct
for crucial information regarding academic integrity.  The library also has an extremely useful website with resources at http://libguides.uwb.edu/ai.  You are responsible for knowing what constitutes a violation of the University of Washington Student Code, and you will be held responsible for any such violations whether they were intentional or not.  Plagiarism is one of the most common violations of academic integrity, so please pay attention to the web information.

**Access and Accommodations:** Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please

communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 425-352-5307 or drs@uwb.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s), and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

**H1N1 and Other Communicable Diseases Action Steps:** As part of the campus community's shared responsibility for minimizing the possible spread of H1N1 virus and other diseases this year, it is critical that all students are familiar with the symptoms of H1N1 Flu described on the UW Bothell website at http://www.uwb.edu/flu. Any student or instructor with flu-like symptoms is encouraged to stay at home until at least 24 hours after they no longer have a fever without the use of fever-reducing medications. If you are sick and have an extended absence, please speak with me regarding alternative ways to maintain your progress in your courses. If I am sick and need to cancel class, I will post an announcement on our course website.

**Inclement Weather:** Please check if the campus may be closed due to weather. Information about suspension of operations will be made public and available through the media. Students can learn of campus operations status from the website or by calling the Campus Information Hotline 425.352.3333. You may also sign up with an alert system that will contact you via email or text message if classes are canceled. For more information on the alert process, please see http://www.uwb.edu/alert. Class activities will be rescheduled as needed, and assignments may be posted online to the course website.

**Student Support Services:**
IT Helpdesk: IT@uwb.edu , 425-352-3456
Library: http://library.uwb.edu/ 425-352-5340
Writing and Communication Center (WaCC): www.uwb.edu/wacc  425-352-5253
Quantitative Skills Center (QSC): http://www.uwb.edu/qsc 425-352-3170
Student Success Services:  http://www.uwb.edu/studentsuccess 425-352-3776
Career Services:  http://www.uwb.edu/careers 425-352-3706
Student Counseling Services: http://www.uwb.edu/studentservices/counseling
        425-352-3183

**Citations**
Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., and Wittrock, M.C. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objective.* (Complete Edition). New York: Longman.

Cohen, E. (1994). *Designing Groupwork: Strategies for the Heterogeneous Classroom*. 2nd Edition. New York: Teachers College Press.

Crouch, C.H. and Mazur, E. (2001). Peer Instruction: Ten years of experience and results. Am. Journal of Phys. 69 (9), 970-977.

Hart Research Associates. (2013). It Takes More Than a Major: Employer Priorities for College Learning and Student Success. Liberal Education. 99 (2).

Springer, L., Stanne, M.E., and Donovan, S.S. (1999). Effects of Small-Group Learning on Undergraduates in Science, Mathematics, Engineering, and Technology: A Meta-Analysis. Rev. of Educational Res. 69 (1), 21-51.

Figure 1:

| Table 1. The cognitive processes dimension — categories, cognitive processes (and alternative names) | | | | | |
|---|---|---|---|---|---|
| lower order thinking skills ————————————————→ higher order thinking skills | | | | | |
| **remember** | **understand** | **apply** | **analyze** | **evaluate** | **create** |
| recognizing (identifying)<br><br>recalling (retrieving) | interpreting (clarifying, paraphrasing, representing, translating)<br><br>exemplifying (illustrating, instantiating)<br><br>classifying (categorizing, subsuming)<br><br>summarizing (abstracting, generalizing)<br><br>inferring (concluding, extrapolating, interpolating, predicting)<br><br>comparing (contrasting, mapping, matching)<br><br>explaining (constructing models) | executing (carrying out)<br><br>implementing (using) | differentiating (discriminating, distinguishing, focusing, selecting)<br><br>organizing (finding coherence, integrating, outlining, parsing, structuring)<br><br>attributing (deconstructing) | checking (coordinating, detecting, monitoring, testing)<br><br>critiquing (judging) | generating (hypothesizing)<br><br>planning (designing)<br><br>producing (construct) |

(Adapted from Anderson et al., 2001, pp. 67-68)