

STEAM Work Experience Program Syllabus - PCC - Summer 2019

Program Title:

STEAM (Science, Technology, Engineering, Arts, & Mathematics) Work Experience Program.

Summer Term: *July 1st - September 4th, 2019*

Website: STEAMWE.github.io

Staff:

Rakeem Washington (Opening Doors Project Director) Rakeem.Washington@pcc.edu

Julie Stocker (Opening Doors Education Coordinator) Julie.Stocker@pcc.edu

- Oversee Opening Doors Project, manage intern payments, administrative, and intern issues.

Francesca Frattaroli (STEAM Program Coordinator) Francesca.Frattaroli@pcc.edu

- Oversees STEAM WE curriculum, equipment and materials budget, scheduling, and lab access.

Jordan Laurent (Lead Instructor) Jordan.Laurent@pcc.edu

- STEAM WE instructor with experience in design, microelectronics, music, and coding. Oversees TEB 119 STEAM Room access.

Adam Greene-Haley (Instructor) HoodRichardson@gmail.com

- STEAM WE Drone instructor based out of the Airway Science Program. Oversees Airway Science Room Access.

Location:

PCC Cascade Campus, 705 N Killingsworth St, Portland, OR, 97217

- Margaret Carter STEAM Room, TEB 119
- Airway Science Room, TEB 121

Description:

The STEAM Work Experience Program is an opportunity for interns to explore creative and technical fields through hands-on personal and group projects, special topic presentations, and field trips. In addition to learning new tools and STEAM skills, interns will have the opportunity to develop general workplace skills including teamwork, time and project management, workplace communication, and shop safety.

This program is intended to help interns identify their interests as they relate to potential career paths and develop those interests through projects and workshops that build relevant skills. Interns will be provided with an array of prototyping tools and corresponding safety trainings, personalized assistance, and access to a material and equipment budget to realize their projects. Interns who successfully document their projects will also be given a platform to build an online portfolio, showcasing their skills and accomplishments.

Program Content and Outcomes:

The STEAM Work Experience Program is a selection of group and individual learning opportunities, in which interns can choose to participate in all scheduled offerings or work with the project director and education coordinator to develop an independent project or personalized goal for the term.

Program Elements:

1. **Tool Mastery:** interns can focus on mastering a specific tool or set of tools, building out documentation and example work.
2. **Group Projects:** interns can work to contribute to a long-term group project with an established goal.
3. **Independent Projects/Independent Study:** interns can choose to focus on a specific theme or academic discipline, taking online courses and designing projects that align with a specific field of study.

Sample of program offerings:

1. **Drone Building and Flying Project:** Weekly drone workshop where interns are able to assemble, program, modify, and fly remote controlled drones. (skills: general fabrication, soldering, electronics, programming, piloting)
2. **Farmbot Project:** Multi-term project where interns assemble an autonomous gardening robot, select optimal plants for climate, program and monitor garden, and harvest produce. (skills: general fabrication, electronics, programming, environmental science, agriculture).
3. **Sonic Arts Workshop:** Workshop where interns learn the basics of Ableton software, recording, and beat mixing techniques. (skills: Audio Technology & Production, Interface Design, creative expression)

Success in this program is largely dependent upon the time and effort investment of each intern, for which there is no set requirement (max. 18hrs/week). However, there are a set of outcomes that an intern who actively participates can expect to achieve.

Upon successful completion of this program, interns will be able to:

- Identify PCC's career pathway programs
- Identify and use common measurement and hand tools (Calipers, Measuring Tape, Hammer, Drill, etc.)
- Respect standard shop safety and maintenance protocols
- Operate a 3D Printer, Laser Cutter, Soldering Iron, & CNC Router
- Generate designs using 2D and 3D Modeling Software
- Identify common electronic components and apply basic circuit theory to microelectronic projects
- Apply Design Process, project management, and teamwork techniques to hands-on projects
- Clearly document their skills and projects and be able to explain their accomplishments to a layperson
- Share a portfolio of completed projects and acquired skills to a potential employer or educator

Program Rules and Expectations:

As a work experience program, interns will be paid an hourly wage for time spent working on projects and developing skills. This comes with the expectation that interns will treat this program and its spaces with respect, adhering to the following professional standards:

- **Treat fellow interns as colleagues** - When you can, help your classmates when they are struggling with a problem by sharing your skills and acquired expertise.
- **Avoid swearing and use respectful language** - when communicating ideas and disagreements. Even if nobody is being insulted, swearing it is considered highly unprofessional in many workplaces.
- **No phone use allowed in the workspace** - (except with prior approval - let us know if you are expecting an important call). Working with hand and power tools requires undivided attention and phones pose a dangerous distraction.
- **Sign in at the beginning and end of the day** - Pay is dependent on attendance
- **Maintain good communication attendance** - Let us know when you won't be coming in.

With these workplace responsibilities, come **additional benefits** not found in many traditional academic courses:

- **There are no minimum attendance requirements**, with the exception of orientations and safety trainings (though lack of participation may make it harder to re-engage ongoing projects).
- **Students can request 1:1 training for subjects** or technologies not covered in group orientations.
- **Students may make products for sale**, using work experience tools and resources.

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Program Content and Schedule:

The instructor reserves the right to revise the class calendar, modify content, and/or substitute assignments in response to institutional, weather, or class situations.

2019 Summer Term: July 1st - September 4th

General Weekly Format: *(for interns who cannot attend all regular hours, let us know your schedule).*

LOCATION:	TEB 119/121	TEB 119/121	TEB 119/Remote
TIME:	MONDAY	TUESDAY	WEDNESDAY
10PM - 11PM	Career Training	STEAM Topic Workshop	Field Trip
11PM - 12PM	Career Training	STEAM Topic Workshop	Field Trip
12PM - 1PM	-----LUNCH BREAK-----		
1PM - 2PM	STEAM Topic Lecture	STEAM Topic Workshop	Field Trip
2PM - 3PM	Drone Workshop	Drone Workshop	Field Trip
2PM -4PM	Drone Workshop	Drone Workshop	Field Trip
ACTIVITY:	New Topic Lecture	Group Workshop	Field Trip

WEEK	DATES	EVENTS/TOPICS
1	7/01 - 7/03	Orientation and Introductions / Radio Soldering Project
2	7/08 - 7/10	Laser Cutting Trainings / Sylvania Automotive Tour
3	7/15 - 7/17	3D Printer Trainings / Rebuilding Center Workshop
4	7/22 - 7/24	Online Portfolio Development / Free Geek Computer Workshop
5	7/29 - 7/31	BREAK
6	8/05 - 8/07	BREAK
7	8/12 - 8/14	CNC Training / Swan Island Tour and Workshop
8	8/19 - 8/21	Robotics Workshop / Metalwood Welding Workshop
9	8/26 - 8/28	Arduino Microcontroller Workshop / Free Project Day
10	9/03 - 9/04	(Labor Day Monday) E-Textile Workshop / Scrap Art Workshop

Schedule changes from week to week, see course website for detailed, up-to-date schedule

Accessibility and Accommodations:

PCC is committed to ensuring that classes are accessible. Disability Services www.pcc.edu/disability/ works with students and faculty to minimize barriers. If students elect to use approved academic accommodations, they must provide in advance formal notification from Disability Services to the instructor.

Title IX/Nondiscrimination:

PCC is committed to creating and fostering a learning and working environment based on open communication and mutual respect. If you believe you have encountered sexual harassment, sexual misconduct, sexual assault, or discrimination based on race, color, religion, age, national origin, veteran status, sex, sexual orientation, gender identity, or disability please contact the Office of Equity and Inclusion at (971) 722-5840 or equity.inclusion@pcc.edu.

Student Rights and Responsibilities:

The [Student Rights and Responsibilities Handbook](http://www.pcc.edu/about/policy/student-rights/) [www.pcc.edu/about/policy/student-rights/] establishes students' freedoms and protections as well as expectations of appropriate behavior and ethical academic work. The Handbook includes items such as the Policy on Student Rights, the Policy on Student Conduct, and the Academic Integrity Policy.

Sanctuary College:

PCC is a sanctuary college. PCC will continue to uphold our legal obligation to protect the privacy rights of all students by observing the federal Family Educational Rights and Privacy Act (FERPA). We will not release non-directory student information unless legally compelled to do so, and will continue to offer FERPA workshops to students to increase awareness of their rights under this law. PCC public safety officers do not and will not enforce federal immigration laws as they do not have the legal authority to do so. Instead, they will remain committed to working to make PCC safe for all.

For more information and resources, see www.pcc.edu/resources/undocumented-interns/.