

Electronics for the Rest of Us!



INSPIRE 1A03 | Spring 2020 | Jay Brodeur

Today's topics

- Welcome & introduction
- Course outline
- Introduction to circuits and programming using Arduinos
- Setting up your project site
- Practicing markdown

Welcome & introductions

Your instructor

My Name: Jay Brodeur

My Background: PhD, Earth & Environmental Sciences

My Day Job: Associate Director, Digital Scholarship
Services

in the McMaster University Library

Topics I Teach: Climate change, climatology, electronics,
scientific inquiry, programming, analysis



Module outline & expectations

Also found online on our [module webpage](https://u.mcmaster.ca/eru-home) (short: u.mcmaster.ca/eru-home)

Learning objectives

By the end of this module, you will be able to:

- Explain the fundamental concepts and operational principles of simple circuits, sensors and actuators
- Apply fundamental principles to build simple circuits that interact with their surrounding environments
- Create and modify software code to control the device and create comments to document its functionality
- Apply your skills, knowledge and creativity in the process of creating an original electronic device
- Use Markdown to format text in a simple yet effective manner
- Create, edit, and version control files in a GitHub repository
- Use GitHub Pages to share your results on an openly-accessible webpage

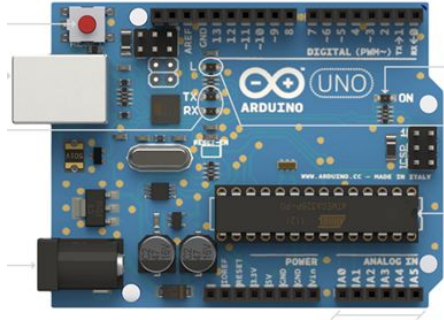
But most importantly...



... this module is an opportunity for you to:

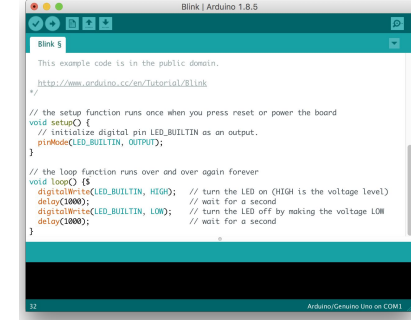
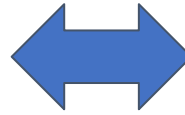
- Try and learn some new things (and get credit for it)
- Develop practical electronics and programming skills
- Learn by experimenting, building, and creating
- Learn at your own pace, according to your own preferences

Connecting the pieces



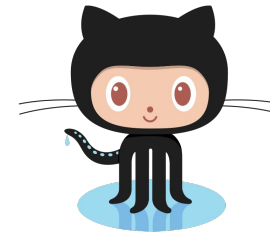
Arduino board, kit

Building circuits for electronic devices



Arduino IDE; programming

Building the code to operate the devices



GitHub; GitHub Pages

Saving and sharing code;
Documenting your work; Sharing results

Module structure

The module will be delivered using a variety of different modes. All synchronous sessions will be carried out using MS Teams (Jay has already added you to a Team)

- Asynchronous working time: Using prepared guides and videos to complete the lessons
- Synchronous sessions:
 - Synchronous lessons with Jay: Meeting on the “General” channel of our Team
 - Synchronous support time with Jay: Meeting on the “General” channel of our Team
 - Synchronous group support time: Meeting in your group’s channel of our Team

Use of contact hours

Day 1 (Tues, 19-May)	4:00 - 6:00 pm 8:00 - 9:00 pm	Introductory session (everyone); breakout session (groups) Working time with support
Day 2 (Wed, 20-May)	4:00 - 5:00 pm 5:00 - 6:00 pm 8:00 - 9:00 pm	Introduction to day 2; check-ins & updates Working time with support Group breakout session
Day 3 (Thurs, 21-May)	4:00 - 6:00 pm 8:00 - 9:00 pm	Introduction to day 3; Working time with support Working time with support
Day 4 (Fri, 22-May)	4:00 - 6:00 pm 8:00 - 9:00 pm	Working time with support; Final device presentations Extra support time, if required

Deliverables



Deliverable	Weight	Notes
Day 1 reflection + embedded photo	15%	Started on Day 1; Completed on Day 2
Day 2 results + uploaded thermometer code	20%	Completed on Day 2
Final device description + code + sales pitch video	40%	Started on Day 3; Completed by Day 4
Final reflection & summary	15%	Completed on Day 4
Overall project webpage quality	10%	

More information on deliverables and evaluation criteria can be found at
<https://inspire-1a03.github.io/eru-2020/eru-outline.html>

Expectations

- Put in your best effort — It's not about how much you build, but how much you learn
- Use others as resources — Jay and your peers
- Participate in conversations
- Communicate with Jay when there is an issue
- Be creative; ask questions; make it fun!