



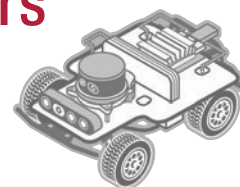
**BEAVER WORKS**  
Lincoln Laboratory | School of Engineering



# MIT Beaver Works Summer Institute

## Fall 2022 Outreach Program – 6 Courses

**Girls Who Program Autonomous Cars**



**Girls Who Run Cyber Operations**

**Girls Who Design, Build and Fly Model Aircraft**

**Girls Who Want to Learn Many Interesting Things**

**Girls Who Program Cognitive Assistants**



**Girls Who Analyze the Building Blocks of Life**

**No Prior  
Experience  
Required!**

**WHO:** High School 11th Grade Female Students \*

**WHEN:** Saturdays 11am-2pm (EST): October 15, 22, 29,  
November 5, 12, 19, December 3, 10, 2022

**WHERE:** Virtually, through Zoom!

**REGISTER:** [https://mit-bwsi.formstack.com/forms/bwsi\\_fall2022](https://mit-bwsi.formstack.com/forms/bwsi_fall2022)

**FAQs:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>

\* While all BWSI programs are open to eligible students of any gender identity this fall program is designed to encourage and support female students in STEM.



Patrick J McGovern  
FOUNDATION



**School of Engineering**





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# GIRLS WHO PROGRAM AUTONOMOUS CARS

## A BWSI MINI-RACECAR CRASH COURSE

### RACING ROBOTS!



### No Cost!



### LEARN TO CODE PYTHON!

### NO HARDWARE REQUIRED!



### NO PRIOR EXPERIENCE REQUIRED!

**Who:** Female High School Juniors interested learning about code and robots! Beginners encouraged!

**When:** Saturdays 11am to 2pm (EST) – 10/15, 10/22, 10/29, 11/5, 11/12, 11/19, 12/3, 12/10, 2022

**Where:** Virtually, through Zoom!

**Registration Form:** [https://mit-bwsι.formstack.com/forms/bwsι\\_fall2022](https://mit-bwsι.formstack.com/forms/bwsι_fall2022)

**Frequently Asked Questions:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>





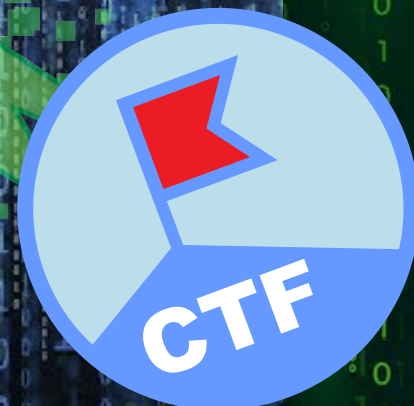
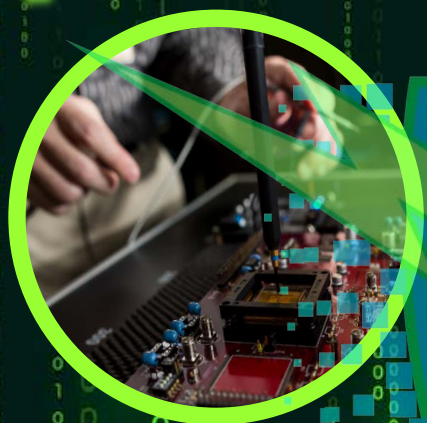


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# GIRLS WHO RUN CYBER OPERATIONS!

## No Cost!



```
char release_message[1025];  
// get message  
for (int i = 0; i < release_message.length;  
    release_message[i] = uart_read(UART1, BLK, 1);  
    comboMetadata[54+i] = release_message[i];  
}  
  
// Create 32 bit word for flash programming, version 1 at lower  
uint32_t metadata = ((size & 0xFFFF) << 16) | (version & 0xFFFF);  
program_flash(METADATA_BASE, (uint8_t*)(metadata));  
fw_release_message_address = (uint8_t *) (FW_BASE + size);
```

**No Prior  
Experience  
Required!**

**Who:** Female High School Sophomore & Juniors interested in learning about defensive and offensive cyber operations! (Previous applicants of [Summer] Cyber Operations are also encouraged to reapply!)

**When:** Saturdays 11am-2pm (EST) - Saturday Schedules TBD

**Where:** Virtually, through Zoom! Discord for general communications & labs.

**Registration Form:** [https://mit-bwsf.formstack.com/forms/bwsf\\_fall2022](https://mit-bwsf.formstack.com/forms/bwsf_fall2022)

**Frequently Asked Questions:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>

**Experience in:** Linux, Bash, Python highly recommended, but not required.

**Recommended Hardware:** PC/Mac capable of virtualization.





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# **Girls** Who Design, Build and Fly Model Aircraft — A BWSI Crash Course.

**Design  
Build  
Fly  
Crash  
Rebuild**



## Introduction to RC Model Aircraft Design

**No Prior  
Experience  
Required!**

**Who:** Female High School Juniors interested in Aerospace and Aeronautics.

**When:** Saturdays 11am to 2pm (EST) – 10/15, 10/22, 10/29,  
11/5, 11/12, 11/19, 12/3, 12/10, 2022

**Where:** Virtually, through Zoom!

**Registration Form:** [https://mit-bwsf.formstack.com/forms/bwsf\\_fall2022](https://mit-bwsf.formstack.com/forms/bwsf_fall2022)

**Frequently Asked Questions:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>







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# Girls who want to learn

## Many Interesting Things:

From Transistors to Data Science

A BWSI Medlytics intro course by Christian Cardozo

An early introduction to the technologies that shape our world,  
with applications to medical data analytics!

Computer Architecture • Python  
Machine Learning • Computer Vision

No prerequisites.  
No pressure.

**NO PRIOR  
EXPERIENCE  
REQUIRED!**

**Who:** Female High School Juniors interested learning about computers, coding and medical data analytics. Beginners Encouraged!

**When:** Saturdays 11am to 2pm (EST) – 10/15, 10/22, 10/29, 11/5, 11/12, 11/19, 12/3, 12/10, 2022

**Where:** Virtually, through Zoom!

**Registration Form:** [https://mit-bwsi.formstack.com/forms/bwsi\\_fall2022](https://mit-bwsi.formstack.com/forms/bwsi_fall2022)

**Frequently Asked Questions:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>

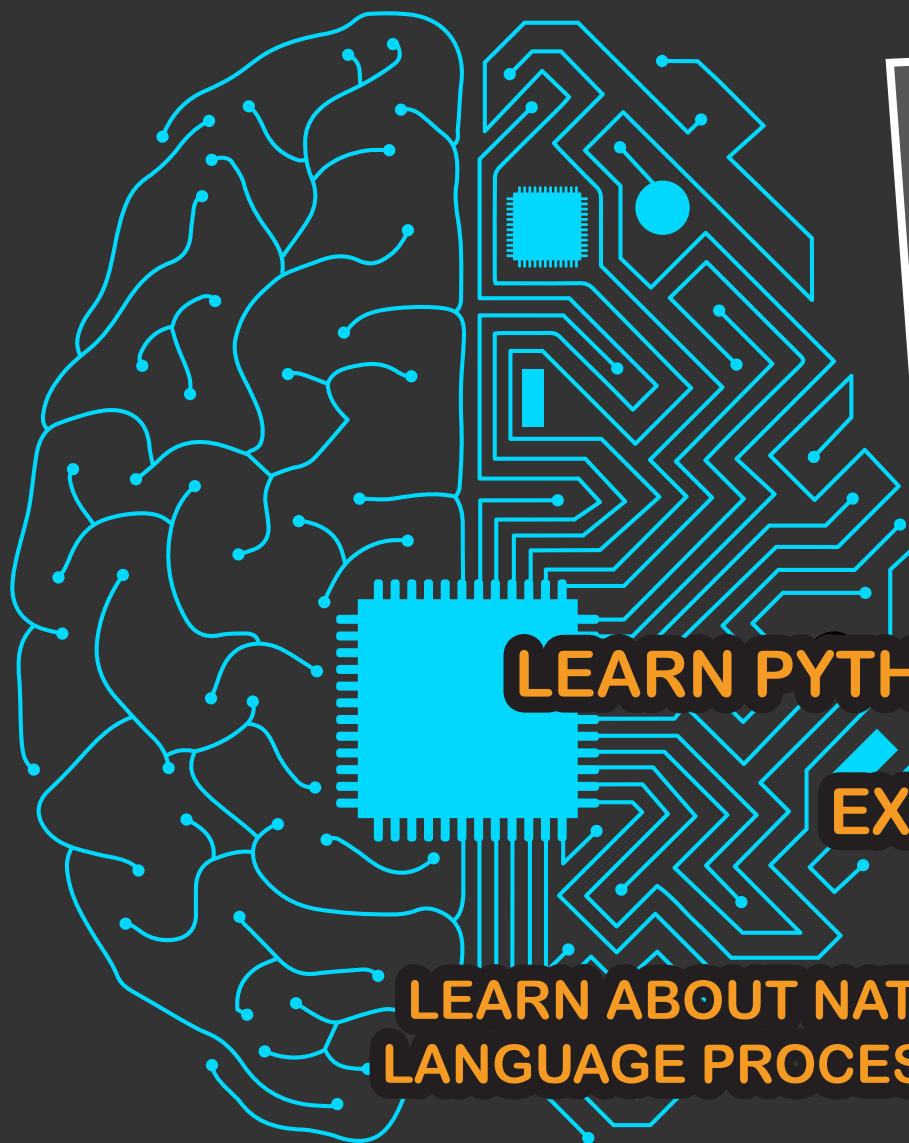




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# Girls who program cognitive assistants! — a BWSI crash course



An introduction to artificial intelligence through building an autonomous cognitive assistant!

**LEARN PYTHON!**

**EXPLORE MACHINE LEARNING!**

**LEARN ABOUT NATURAL LANGUAGE PROCESSING!**

**No  
Prior  
Experience  
Required!**

**Who:** Female High School Juniors interested learning about code and artificial intelligence! Beginners Encouraged!

**When:** Saturdays 11am to 2pm (EST) – 10/15, 10/22, 10/29, 11/5, 11/12, 11/19, 12/3, 12/10, 2022

**Where:** Virtually, through Zoom!

**Registration Form:** [https://mit-bwsι.formstack.com/forms/bwsι\\_fall2022](https://mit-bwsι.formstack.com/forms/bwsι_fall2022)

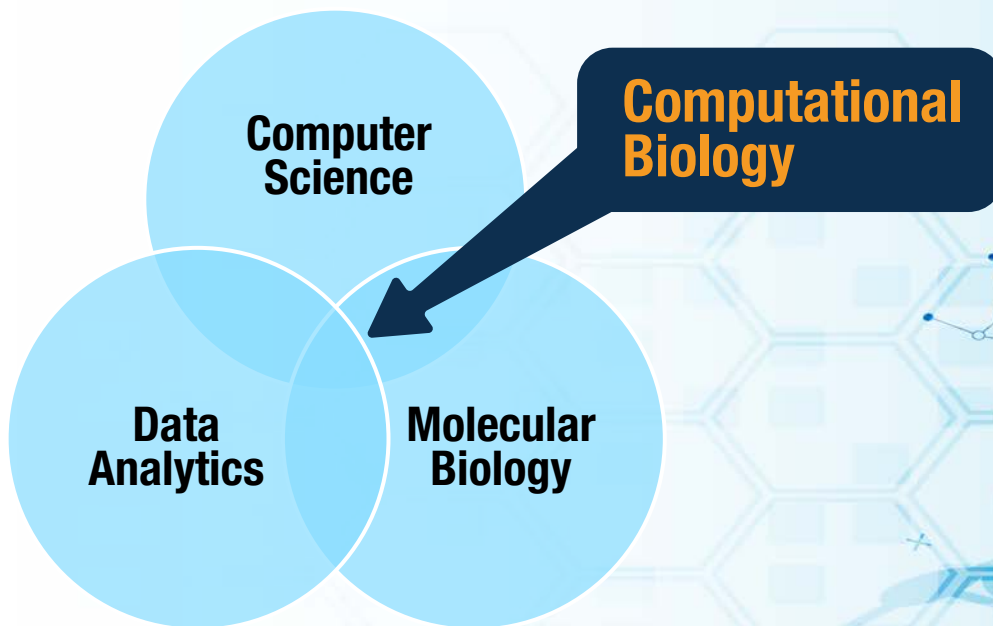
**Frequently Asked Questions:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>





# Girls Who Analyze the Building Blocks of Life

MITRE – Lincoln Laboratory Project



The future of bio is now! Join us this spring for BWSI's *Computational Biology and the Microbiome* course — co-developed by MITRE and MIT Lincoln Laboratory. Learn about fundamental computational biology concepts like genomics, programming, data visualization, and digital biosecurity in a fun, low stress environment.

**No  
Prior  
Experience  
Required!**

**Who:** High School Students (10th and 11th grade) interested in computational biology and the microbiome! Beginners encouraged!

**When:** Saturdays 11am to 2pm (EST) – 10/15, 10/22, 10/29, 11/5, 11/12, 11/19, 12/3, 12/10, 2022

**Where:** Virtually, through Zoom!

**Registration Form:** [https://mit-bwsi.formstack.com/forms/bwsi\\_fall2022](https://mit-bwsi.formstack.com/forms/bwsi_fall2022)

**Frequently Asked Questions:** <https://beaverworks.ll.mit.edu/CMS/bw/FAQ>

