



## Fall 2022 Program Advisory Committee Minutes October 20, 2022

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**Program: Biotechnology**

**Members Present:** 10, Justin Mason, Jeffrey Silva, Joseph Tringale, Andrew Gardner, Gene Wong, Deb O'Reilly, Alexa Carr, Lauren Budd, Steven Hubbard, Arlyssa LaPorte

**Program Facilitator:** *Arlyssa and Deb*

**Committee Chair:** *Andrew Gardner*

**Program Updates** (enrollment, curriculum, equipment & projects/field work, etc.)

MLSC grant, applying for grant this year to expand program

Started with program tour to point out new equipment

Enrollment: increasing from COVID from 12 kids to 19 or 20 kids. 16 is ideal.

Mostly 1st or 2nd choice of kids.

**Curriculum & Equipment, projects and field work**

Seniors - Introduce real lab research, that failure happens:

CRISPR Blue/white transformation knockout

Mitochondrial DNA workflow

Corn field pathogen detection & expansion of tick project to look for other pathogens

Outreach: Masco teaching in the middle schools. Essex Tech teach the kids

Outreach is important for grants and leadership opportunities for students

Teacher training:

NGS Jessica Kaufman

CRISPR needs



Equipment

Bioreactor purchased

Supply chain problems are getting better

Optional credentially for biotech (BACE) program.

### Curriculum Bias/Programmatic Review

- Biotechnology is one of the most diverse programs at Essex Tech. Increase in English language learners and bilingual students.
- Industry wants to attract a more diverse workforce.
- Field trip to Millipore

### Cooperative Education Update

- A few students have co-ops:
  - Amgen biotech experience
  - Nth cycle, Alamak, CVS
  - Harvard ABE internships
  - Sebastian Graves as mentor
  - More students want internships than internships
  - Challenge of co-op during school year at biotechs
  - Mass life Sciences has high school internship program but they have not followed through
  - Open to virtual internship: send supplies and Deb is willing to supervise
  - Launchworks as option
  - Still need more internships but limitations on age.
  - Independent research might be the way to go.
    - Company Researcher or Endicott thesis students paired with Senior student to do a project
    - Company sends material
    - Do lab work at Essex Tech
    - Virtual lab meetings – everyone is used to Zoom meeting now.
    - Do regular lab experiments



- Scope: 6 weeks. Semester long
- Project proposal from Researcher – pair with students
- Build communication skills
  
- \$500 Stipend would be nice
- Can pair up Junior and Senior for continuity
- Andy Gardner will follow up at NEB

Send students to be a teacher at other High Schools for teaching labs. Jeff Silva will think about this.

### Employment Outlook/Industry Trends

- Job market is hot for employees.
- Employers need to rethink job requirements: do you need a college degree to wash dishes, prepare media.
- Cell Signalling, New England Biolabs say have hard time finding qualified applicants.
- Bioinformatic training is important
- CLIA lab

### Recommendations for Program *(including budget needs for FY24)*

- With the design of new lab space on South campus, get advice and input from teachers and professionals about space requirements and design.
- Biomanufacturing is going to be important and the newly built space needs to reflect.
- There is a need to train workers for biotechnology and biomanufacturing on the North Shore and Massachusetts. Local biotechnology companies have trouble finding skilled workers.



- Hire prep person for the lab especially with 20 people to help prepare lab supplies and instrument maintenance. The breadth and frequency of labs depend on it.
- Have A Biotech Program Open House to see what the kids are doing to increase visibility.
  - Tour, “have your next meeting here”, lunch and increase visibility
  - NSTC: Gene Wong next meeting here.
- Explore Independent Research Program

### Financial Fair Recruitment

We will spend our time volunteering in other ways.

### New Business

We appreciate Deb and Arlyssa’s commitment to the program and are incredibly impressed and committed to helping move the program forward.

Essex Tech join North Shore Life Science Consortium. More interaction with NSCC.

Possible bio interns from Endicott to teach.

Actions:

Gene Wong: NSTC next meeting at Essex Tech; North Shore Life Science Consortium.

Andy Gardner: Discuss student research independent projects (virtual) between Essex Tech and NEB.

**The meeting adjourned at (time): 8:13pm**