



## **Spring 2022 Program Advisory Committee Minutes**

**Program:** Biotechnology

**Date:** 4/7/22

**Members Present:** Deb O'Reilly, Arlyssa LaPorte, Barton Slatko, Steven Hubbard, Alana Arangio, Stef Deluca, Andy Garner, Alyson Bisenti, Alexa Carr, Jennifer Carr, Gene Wong, Brianne Hantzis

**Program Facilitator:** *Arlyssa LaPorte*

**Committee Chair:** *Andy Gardner*

**Subject** *Program Updates (enrollment, competency attainment, curriculum, equipment & projects/field work, senior portfolio showcase, etc)*

### **Discussion**

Ongoing projects include:

- Senior class - Collection of soil samples from 5 different local farms and testing for 2 pathogens (Northern cornleaf blight, & Bacteria Leaf Streak) by PCR. Farmers also worried about mildew on squash, seniors currently looking into finding primers to ID mildew using ITS regions.
- Both Seniors and Juniors are back to doing middle school outreach, working with 2 7th grade teachers at Higgins to teach 7th graders micropipetting and basic gel electrophoresis. Students were so impressive teaching their CTE learned skills, excellent use of communication and social skills. 4 Days of field trips to Higgins.



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- Seniors working on being an ABE distribution site for MASCO & becoming manufacturing experts for Reagents and gels for pipetting, gel electrophoresis of dyes, Restriction digest, Transformation, Colony PCR. They serviced all of the Bio classes, AP bio and Biotech classes for high school as well as 6&7th grade. Seniors completed 6 full days of field trips to MASCO.
- Seniors are currently working on developing skills to complete library preps for sequencing of mtDNA on iSeq. First try was not a success, but they will continue to develop skills and retry library prep as well as gain experience using nanodrop, bioanalyzer, and qubit.
- Professional Development for Biotech CTE instructors - completed 5 classes with Dr. Kaufman (Endicott) on nuts to bolts library prep and sequencing runs as well as using tools like galaxy for Sequencing data analysis.
- 11th grade about to start mammalian cell culture, and just finished complete series of ABe Labs, had great success with transformation and RFP production thanks to Alexa's research project from last year on getting cells to express RFP.
- Thanks to suggestions from PAC, students in Biotech are able to take programming rather than A&P and have helped with some very cool 3D printed designed for useful benchtop lab tools. Ice racks, magnetic racks, pipet & tube holders.

**Subject**      *Cooperative Education Update*

**Discussion**

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- 2 Seniors working on a virtual internship with MiniPCR, DNA barcoding of mushroom samples, and working on DNA extraction methods.
- 2 Juniors just started Harvard Virtual internship Looking at optimizing a PTC taster lab and extraction of DNA from foods to test for GMOs. Both projects being continued from junior projects last year.
- 12 Seniors working at CVS Coops, 1 at iHisto in Salem.
- Several Juniors have applied for a position at Alamak (histology processing company in Beverly). Abiomed may also be interested in taking students.
- Brianne mentioned that although in Waltham (may be far) Skyhawk (pioneer in RNA biology) has started taking some paid interns on a rotating basis - some even High School. She will look into this. There may be a need for interns to help with reorganization of cryostorage, database updates.
- Senior Portfolio showcase will be held May 9 starting around 8:30 and will be looking for volunteers to sit in on presentations and ask questions/provide feedback. A volunteer sign up sheet for time slots will be sent out for those who would like to attend.

**Subject**     *Review CTE Program Assessment*

### **Discussion**

- Health & Safety - Exemplary rating.
- Recruitment/Exploratory - Proficient, still not attracting many boys, program has gotten more racially diverse over past few years. Still not attracting nor filling with first choices, still picking up many 2nd, 3rd or more choices (many who do not get dental/health).
- Curriculum & Sequential instruction - Proficient, not as of yet providing syllabi for each grade level quarterly. Written curriculum is currently under revision.
- Job Market for Trade and Trends - Proficient - high demand for trained workforce, coop options could be better CVS is not ideal for many Biotech students.



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- Program advisory committee - Exemplary.
- Budget - Proficient, Updated thoroughly yearly, do not have regular 5 year plan.
- Staff Credentials - Both professional status, professional licenced, SEI endorsement, continually improving professional development.
- Annual self- Assessment - Proficient

**Subject**     *Employment Outlook/Industry Trends*

**Discussion**

- Having students learn computer and technology tools is important as everything appears to be going digital across the industry in Biotech.

**Subject**     *Recommendations for Program*

**Discussion**

- Recommendation to increase storage space - With increased class sizes, and bringing in more equipment and supplies, storage space in the CTE area has become inadequate. There is a need for better use of space or addition of more storage space. Barton suggested utilizing space above cabinets with “pull downs”. Installed shelving in certain areas was also suggested.
- Recommendation to increase outlet access - also allow for USBC Number and access to electrical outlets is also a challenge. Strip outlets along all walls with counter would provide more access points.
- Recommendation to bring in a 3rd teacher or hire a lab assistant to help with prep of lab materials. Growth of program and complexity of projects and lab work requires more - teachers are struggling.
- MLSC grant is bringing in some new and exciting upgrades to equipment and technology. Bioreactor will be added to space, to add more



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biomanufacturing into the curriculum. Equipment and supplies to support NGS sequencing on iSeq. New - 80 freezer allows for more frozen stock storage and backup.

- New classroom sets of macbooks and ipads are working out great.
- MilliQ water purification system failure this year was problematic - especially with Biotech supplying dH2O to other programs. It would be wise to invest in setting up a second water purification system - especially where frequency and volume of purified water demand has gone up.
- It was suggested that there may be more opportunities for cross CTE collaborative projects - for example Mass Dept. of Marine Fisheries for testing seawater samples for phytoplankton & red tide.
- Could expand Detection of Lyme disease project to include many other tick borne pathogens - looking into primer sets for PCR detection.
- Could expand cell culture work to include some transfection projects

**Subject**     *New Business*

**Discussion**

**The meeting adjourned at (time): 8:15pm**