



Spring 2020

MCCB NEWS

Letter from the President

Hope to see you in May!

2019 marked the 50th anniversary of MCCB and as such the executive committee set a goal of having 50 participants at the Fall 2019 conference. We did it. No, YOU did it! Make goals, surround yourself with inspired people, work hard, and many things become possible. Thank you to our colleagues at Lansing Community College for hosting the Fall meeting. Erica Staton and Isis Arsnoe did a great job of organizing the event. To make it even better, there were over 50 faculty members from colleges all around the state in attendance. This newsletter will highlight many of the events from that meeting.



An organization is only as strong as its members who are willing to serve. I look forward to welcoming Heather Wesp, Montcalm CC, as the incoming President of MCCB at the May Meeting. Many thanks to Lynnda Skidmore, Wayne County CC, who will step down from her role as Past President.

For those interested in a leadership role in MCCB, reach out to any of the executive committee members. We are currently seeking institution and faculty hosts for the 2021-22 conferences. It really is a lot of fun and a great way to increase collegiality at your institution. Also, if your campus does not have an active MCCB representative, we would like to extend a complementary one year membership to new campus representatives. As a campus rep, your responsibilities are to spread the word about and encourage participation and registration at upcoming meetings.

There is something for everyone in MCCB! Plan now to attend the May 29-30 meeting at Mid-Michigan Community College. It looks to be a great meeting. No matter if you teach about bones, bugs, botany, or bacteria, attending an MCCB meeting is a relatively inexpensive way for you to meet and network with other faculty, learn about classroom and laboratory best practices, and catch up on current research. Be watching for registration details soon.

See you soon!

Shawn Macauley, Ph.D.
Muskegon Community College
President MCCB



[Click here to shop now!](#)



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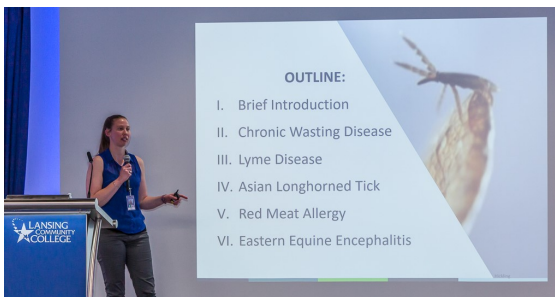
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One Health Approach to Emerging Diseases in Michigan

Dr. Jennifer Calogero, Michigan Department of Agriculture and Rural Development

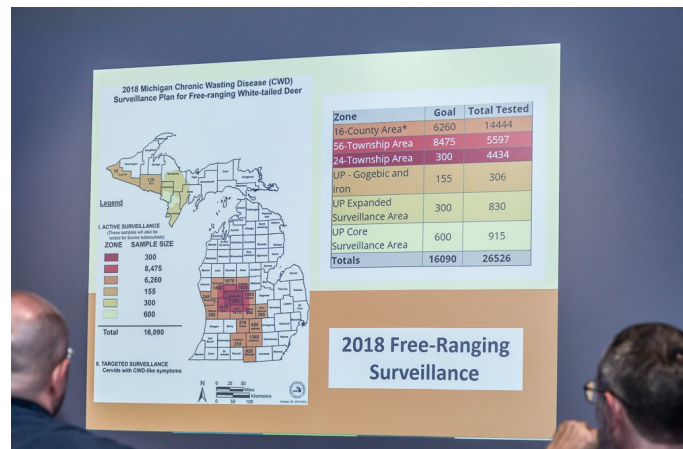
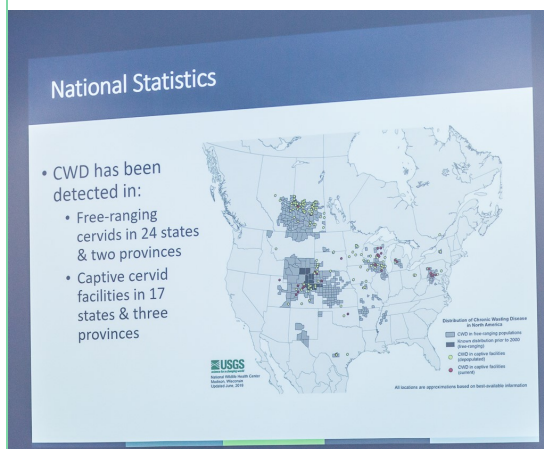
Summary by Isis Arsnoe, North Central Michigan College

Dr. Calogero discussed her work as manager of the cervid and small ruminant program with the Michigan Department of Agriculture and Rural Development (MDARD). This program is charged with performing a variety of activities to protect, regulate and promote health of farmed cervids (deer, elk) and small ruminants (sheep, goat) in Michigan. Dr. Calogero spoke specifically regarding the current status of recent emerging disease issues potentially affecting these populations in the state of Michigan: Chronic Wasting Disease (CWD), presence of the Asian Longhorned-Tick, and Eastern Equine Encephalitis Virus (EEEV).



Chronic Wasting Disease is a degenerative neurological disease of deer, moose, and elk. It is caused by an infectious protein that can be transmitted through direct contact with infected materials (saliva, soil, etc.). CWD was detected in Michigan's wild deer herd in 2015 and continued surveillance to better understand the impact and spread of this disease is ongoing for both captive

cervid farms and the wild deer herd. To date, more than 180 deer have tested positive in the state. More information about the status of CWD deer presence can be viewed on [this interactive map](#) on the State of Michigan's Emerging Infectious Diseases website.



Asian longhorned ticks (*Haemaphysalis longicornis*), native to east and central Asia were first reported in the United States in 2017 from a sheep farm in New Jersey. Since then, these ticks have been detected in at least 12 eastern states. Though these ticks are known to transmit human pathogens in other countries, no cases of human illness due to Asian longhorned ticks have been recorded in the United States. Epidemiologists and researchers remain vigilant in conducting active surveillance to better understand the distribution of these invasive arthropods. A particularly disturbing aspect of this invasive species is that it can reproduce parthenogenically, a form of asexual reproduction whereby unfertilized eggs develop into embryos. In addition, it has a rapid lifecycle compared to other hard tick species (6 months vs. 2 years). These life history traits provide the potential for a rapid population increase in a short period of time.



Eastern equine encephalitis virus (EEEV) is maintained in a cycle between *Culiseta melanura* mosquitoes and avian hosts in freshwater hardwood swamps. Occasionally this virus can spill into the human and equine (horse) populations when a mosquito species that can maintain the virus feeds on avian and mammal species. EEEV has a high mortality rate (1 in 3 cases) and is quite rare (usually 5-10 annual cases nationally). However, 2019 was high year for human cases with Michigan reporting 10 cases, 6 of those fatal.

Field Trip Corey Marsh Ecological Research Center October 5th, 2019

Summary by Ryan Dziedic, Mid-Michigan College

The MCCB participants were treated to a fascinating bird banding demonstration at the (relatively) newly-created Corey Marsh Ecological Research Center in Laingsburg in southern Clinton County. The 400 acre site (formerly the Muck Soils Research Farm) is currently being used as not only a bird banding station, but has plans to include accessible pathways to the marsh where current techniques in wetland restoration will be demonstrated. After 100 years of use as an agricultural research plot, the area is in need of invasive plant removal and the restoration of natural hydrological processes.



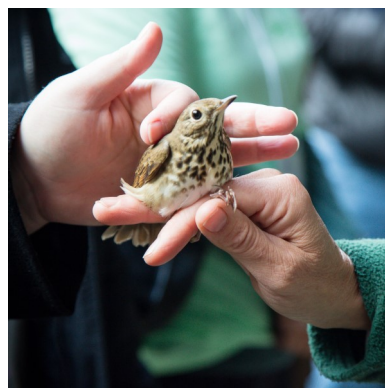
Dr. Jen Owen of Michigan State University has trained students to band birds with hopes that they will be recovered along their migratory routes providing data on longevity, stopover behavior, and/or winter ranges. The student bird banders showed the group the process of banding birds and recording of appropriate data. Three Hermit Thrushes and one Tufted Titmouse were captured during our visit. Each bird was inspected for ticks and scored for fat content (birds' skin is translucent allowing one to part the feathers by blowing to see underlying yellow fat pads). Flight feathers were investigated for wear, signs of molt, or irregular growth patterns helping to age the birds. Each bird's wing chord (length from wrist to tip of longest primary feather) was measured, which can be used to distinguish male and female in some species. As well, each bird was weighed inside of a PVC tube which secures the bird comfortably for accurate masses (see picture on page 1). Lastly, each bird was fitted for an appropriately-sized and uniquely-numbered aluminum band which was placed around one of the lower legs.

Afterwards, MCCB members were permitted to release birds back into the forest from the palm of their hands. Dr. Owen also shared results from the work done on determining what fruit resources birds were utilizing in the area prior to capture. Fecal material was captured on blotting paper placed inside the holding cages of caught birds and then, due to seeds/staining color, it was determined which fruit birds were primarily eating. Her research suggests that spicebush is a critical resource for migrating birds in the fall due to its high fat content. In contrast, buckthorn fruit is high in carbohydrates and comes from highly invasive species. The group was given a very unique bookmark of the various shades of fruit-filled bird feces!

A short walk to the marsh area of the property completed the trip. Several species of waterfowl were noted, including a pair of Trumpeter Swans.



Corey Marsh Bird Banding Station Field Tour

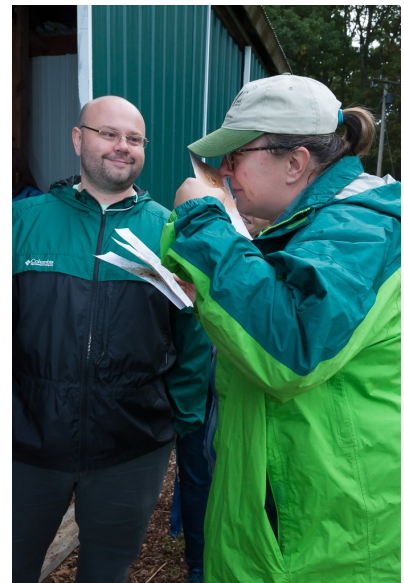


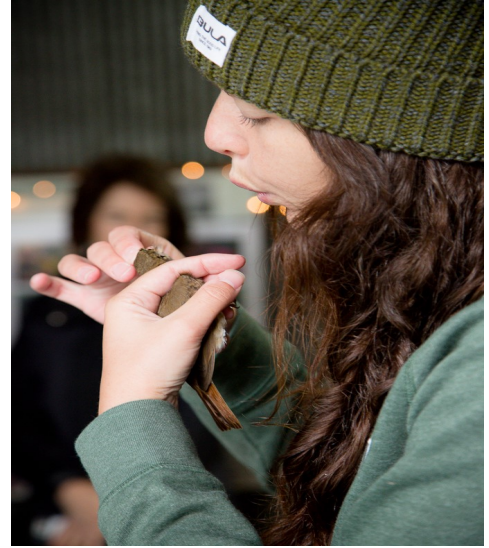
The tufted titmouse in the lower left corner posed like a model, but he was really upset and indignant with the whole process. He made that clear by objecting loudly and ruffling his head-feathers!



Sniffing Bird Poop at the Corey Marsh Bird Banding Station!

Believe it or not, you can tell a lot about what birds have been eating by the color and smell of their poop. A number of adventurous MCCB biologists put their sniffers to the test!





Bird Banding in Action:

Participants got to witness the bird banding process and helped release the birds afterwards.



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Call to Action:

Please consider joining the MCCB Board of Directors. We are in need of people to fill future vacancies. It can be a fun and rewarding experience!

Like us on Facebook:

Please Like us on
[Facebook](#)

Quality In to Quality Out: Promoting STEM Competencies from Higher Ed to Career Success for UMG's

Dr. Robin McGuire and Dr. Melinda Wilson, Lansing Community College

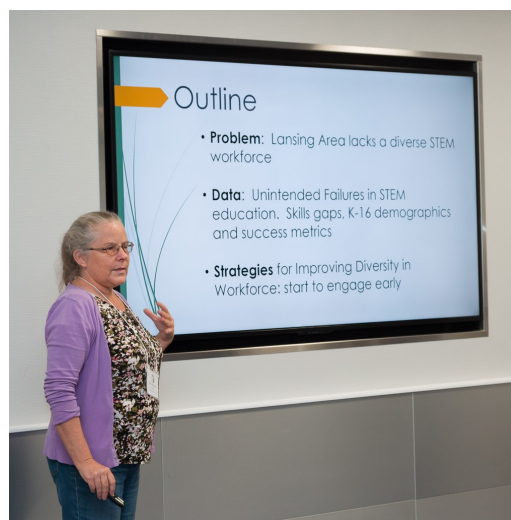
"A diverse workforce enhances innovative solutions."

Summary by Heather Wesp, Montcalm Community College

The Lansing area lacks a diverse STEM workforce. Unintended failures in STEM education have been identified, including skills games, K-16 demographics, and success metrics. Their recommended strategy to improve diversity in the workforce is to engage *early*. LCC is the third largest community college in the state with 12,000 students – 66% of which are white.

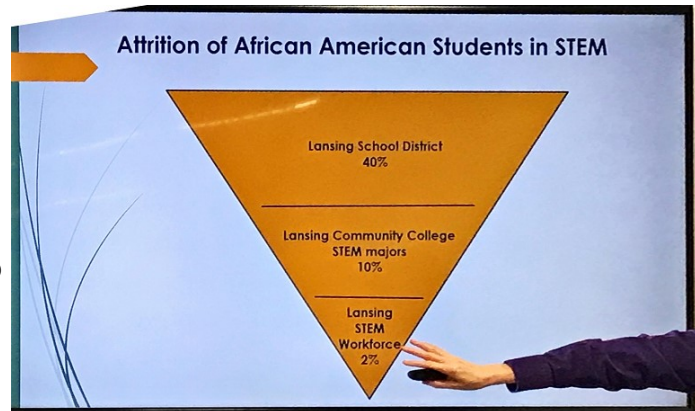
Black students make up the next largest group at about 10%. However, these students make up only 5.6 to 8.3% of science classes. As of 2017, white students have a success rate about 4% higher than average while black students have a success rate 20-25% lower than average in science courses at LCC. When analyzing the pathway sequence in the biology dept (course sequence), the number of diverse students entering is low to begin with and the proportion of students decreases with each additional course. Looking at their feeder high schools, the race proportions are different (40% black, 25% white). Only 20% of students coming from the local schools are considered college-ready. Developmental course work has gone away at LCC and instead there is embedded co-curricular support; faculty are unsure of whether this initiative will support diverse student needs.

A Training grant funded by State of Michigan was awarded to a large local STEM employer. So LCC developed a training course to address needs of employer as well as to inform teaching within LCC's science courses. They conducted a pre-assessment of employee skills (lab math, lab skills, lab safety, and biomanufacturing concepts) with 16 to 43% of employees competent in each area. Following the training course, employee competencies increased to between 74 and 86%.

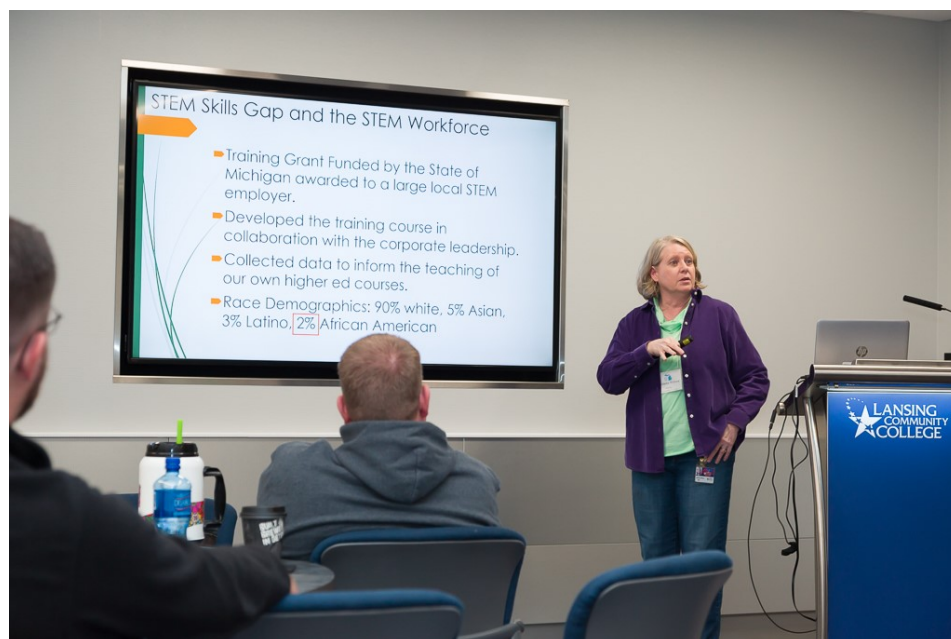


So the question they asked is, “How can we be proactive rather than reactive?” The quick answer was K-5 STEAMfest for K-5 grades, Science Olympiad for 6-12 grades, and Science and Math Success Center in college. But then the expectation was that the students would come to us (LCC). The reality is that the students they most need to reach are unable to do this. So one solution is to go to them!

They are in the process of writing a grant for a STEAMRoller which would allow them to take a maker bus and maker space to the students. Maker is a movement in education to “tinker” and play in order to learn – like sewing machines, drill press, 3D printer, microscopes, etc. Additionally, repeat visits are essential for reinforcement of skills like critical thinking, creativity, innovation, etc. An additional benefit is to build diverse teams of students working on projects at this early level.



During the discussion part of the session, we talked about the need to get the majority of faculty to commit to this topic being a priority. Simple strategies can bring diversity into the classroom – like using TedTalks on scientific concepts from a diverse set of speakers. We also spoke about the need to see representation in the college setting – in class, in tutoring, in instructors. We discussed how early intervention (K-12) is essential but only effective if there are discussion with the actual folks trying to be served so they can tell you what they need. We finished by brainstorming ideas of how to bridge impacting the younger students and actually getting them to apply, enter, and be successful in college.



Utilizing Yeast as a Model organism in the Biology Lab

Kevin J. Worden, Lansing Community College

Summary by Mark Robertson, Delta College

Kevin described how LLC faculty genetically engineered a *Pichia pastoris* strain for use when teaching one of their capstone courses called ISCI 245 (S.T.E.M. Workplace Practices). The purpose of the course is to introduce students to practices encountered in typical regulated, technology driven workplaces (such as biomanufacturing, pharmaceutical, food processing, chemical manufacturing, environmental, etc.). The course has over 30 learning outcomes that are divided into five categories: Introduction, Process Control Concepts, Lab Math and Techniques, Safety and Security, and Legal and Ethical Issues. The outcomes were developed from surveys of local technology based employers (like Neogen) conducted primarily by Dr. Melinda Wilson.

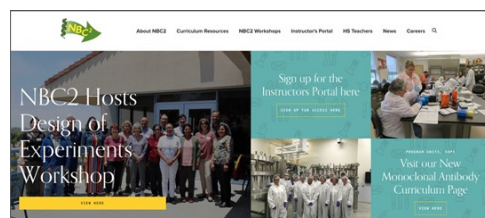


In order to integrate such broad and diverse learning outcomes, and also to provide a rich and realistic educational experience based on real-world problems in the business world, a simple simulated manufacturing model was developed based on existing biomanufacturing processes. At first, they attempted to modify a process based on “Fast Plant” technology, but quickly found that it had too long a life-cycle for a semester, repeatable data was difficult to generate, and it lacked a true biotech “feel”. They next attempted to modify an existing *E.*

coli process in order to generate the protein GFP in the lab. This process was well understood, relatively inexpensive, easily scalable as student numbers changed, and used standard laboratory equipment that they already had on hand. While it was not the process they eventually selected, they at least knew that they were on the right track at that point since it better met their criteria!



After expressing his desire for a better biological model, Dr. Melinda Wilson suggested that Kevin contact Dr. Sonia Wallman of “The Northeast Biomanufacturing Center and Collaborative” (called NBC2) since they had a well-documented process using yeast as a model. The consortiums mission was “to coordinate local and regional efforts into a national biomanufacturing education and training system to promote, create, and sustain a qualified workforce”, and many of their resources (including a textbook) were already available for free on a publically available website: <http://biomanufacturing.org>



Of the three production models that NBC2 had assembled online, *Pichia pastoris* had the best fit to their course objectives and lab resources, and also came with an impressive set of procedures, experience, knowledge, and a long-standing safety record. They even linked to a full (free) lab manual that detailed the exact processes that students needed to produce and then quantify their product yield!

This process had a long list of positives:

It used a Eukaryotic protein expression system (not prokaryotic).

They had a FDA and EMA approved host for the manufacturing of biopharmaceuticals.

It created a straightforward and quick construction of stable cell lines.

The eukaryotic protein processing machinery facilitating protein folding and post-translational modification matched their objectives.

There was active product secretion into culture supernatant (as many labs used).

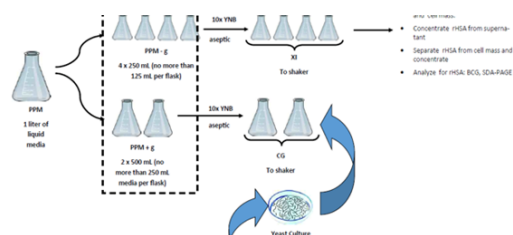
There was a simplified recovery and protein purification process.

Pichia pastoris was ideally suited for the expression of complex proteins that were not expressible in *E. coli*.

It was intrinsically endotoxin and virus free, an important detail when working with novice students in a college lab!

There was robust expression, simplifying cultivation and potential scale-up (with scales of up to ~200,000 liters).

It used simple, chemically defined, and animal-component-free media that was readily available.



The BIOL 125 (Introductory Biology) Blog: Evolution of a Writing Project

Sarah Steinhour, Lansing Community College

Summary by Ying Chen, Lansing Community College

Professor Sarah Steinhour gave a talk about how to develop student writing skills in science classes. It is a plausible idea that people who learn science often do not necessarily learn writing skills. Very few science classes have writing assignments for their students. In reality, everyone needs decent



writing skills for their career. For example, scientists need to write essays, as simple as an abstract or as complex as a grant, to share their findings with peers.

Professor Steinhour is a pioneer who developed writing projects for her science students in her class many years ago. During the seminar, she shared the pros and cons of different strategies to implement writing projects from her practice. Most recently, she is utilizing OpenLCC to allow students to write in a class "Blog." She concluded that this is the best method to implement a class writing project to date. She also shared her valuable practical experience on how to develop a writing project step by step:

1. Decide the goal of the writing project
2. Decide rhetorical conditions, such as writing format
3. Set the rubric of the essay at the beginning of the project and give instructions clearly and concisely
4. Use a scaffolding approach for students' writing process
5. Grade students' writing by providing sample essays and discussing common errors. Professor Steinhour's presentation greatly encouraged many audiences to utilize writing projects in their science classes. "

Using Games to Teach Biology

Arthur Wohwill, Lansing Community College

Summary by Nicole Evans, Grand Rapids Community College

We played games! With a perfect topic for the last session of the conference, Arthur Wohwill inspired us with ideas for games that we can use to enhance student learning. We started with a pre-learning game in which we were given cards representing a stage of a signaling pathway one at a time. We were instructed to place them in the correct location based on knowledge from a previous class session and a little logic, earning points along the way for correct placement. This activity is a great way to help students preview the material to come, and also relate it to what they have already learned. Next, we tried out some review games. My favorite was a PowerPoint template game in which we had to keep a hot air balloon and its occupants afloat by answering questions correctly - answer too many questions wrong and the balloon crashed. This game was great review and it created comradery amongst the participants as we worked together to save the kids. I have since several of these games my own classroom, thank you for all the Ideas Arthur!



Anatomage Table



Attendees were given a vendor presentation of an anatomage table. The table is a touch-interactive, 3D, 1-to-1 life size visualization system for true human anatomy.

Upcoming Events

Spring MSTA Conference

The spring MSTA Conference will be **March 6th and 7th** in Lansing at the Radisson and Lansing Center. Contact Lu Clark for more information at clarkl@lcc.edu.

Spring 2020 MCCB Conference

The Spring 2020 MCCB conference will be held **May 29th and 30th** at Mid Michigan College in Mount Pleasant. A registration form and tentative agenda is located on pages 19 and 20 of this newsletter. Or you may register online by clicking on this link:

<http://www.mccb.org/rsvp/>

ABLE Conference

The 2020 ABLE (Association for Biology Laboratory Education) Conference will be **June 23-26** at UC San Diego. For more information about this organization and conference, visit <http://www.ableweb.org/> or e-mail Heather Wesp at wesp@montcalm.edu

Fall 2019 Conference Met Its Goal!

MCCB celebrated its 50 Year Anniversary in 2019. Therefore, we had a goal to have at least 50 attendees for the Fall 2019 conference. We are pleased to announce we exceeded our goal with 56 registered attendees! Thank you to all of our members for supporting such a great organization!



Lynnda Skidmore and Jerry Hostman
the registration tables.

Website Info

Please visit our website at:

<http://www.mccb1.org/>

You will find information concerning conferences, job positions, general information about our organization as well as useful web resources on our website.

If any MCCB member knows about biology positions, upcoming relevant conferences, seminars, or workshops being held in Michigan (as well as throughout the U.S.) please email information to:

Isis Arsnøe

mccbmembership@gmail.com

and/or Susan Dentel

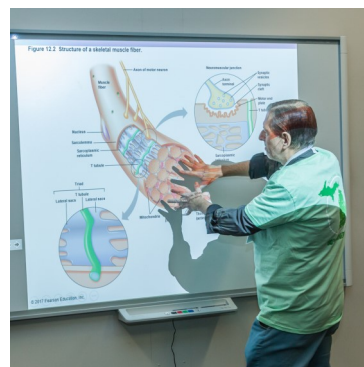
sdentel@wccnet.edu

Physiology of muscle contraction: Teaching relationship between force and frequency of action potentials.

Kabeer I. Ahammad sahib, Adam Jaros & Steve Klimecky
Lansing Community College

Summary by Shawn Macauley, Muskegon Community College

Learning in Action! Participants had an interactive review of the physiology of muscle contraction by LCC Faculty members Kabeer Ahammad sahib, Adam Jaros, and Steve Klimecky. Those who attended then were provided a demonstration of how the iWorx data acquisition system can assist students in achieving a deeper understanding of the nuances of muscle contraction. Critical analysis of the grip strength EMG data can be linked to specific details of the motor unit and motor unit recruitment.



Kabeer I. Ahammad sahib pictured to the left. Steve Klimecky pictured above.

Mission of MCCB:

MCCB (Michigan Community College Biologists) serves as a state-wide forum for sharing instructional techniques and new ideas for teaching college-level biology. The organization fosters communication, friendship, and unity among the biologists of the twenty-nine community colleges in the State of Michigan. Two state-wide meetings are held annually.

Founded in the early 1980's, MCCB began as an offshoot of COSIP (the College Science Improvement Program). Two COSIP groups were originally created in Michigan: a southern group of colleges (associated with the University of Michigan/Dearborn and directed by Dr. Hertzler) and a northern group of colleges (associated with Central Michigan University and directed by Dr. Carl Scheel). The initial meeting to form a statewide organization of community colleges occurred at Delta College in 1981. The first slate of officers was elected at that time, with Eldon Enger as President and Janet Dettloff as Vice-President.

- To promote interest in biology.
- To improve the teaching of biology by providing opportunities to share and discuss instructional techniques and teaching methods.
- To provide opportunities for updates on current topics and trends in biology.
- To facilitate the exchange of ideas and foster communication, friendship and unity among the community college biologists in Michigan

Calling all Nature Photographers!



This is your chance to share your best photos with other biologists.

*Subjects can be anything related to biology - landscapes, scenery, macro photography, animals, flowers, micro photography, etc.

*Each person may submit 1, 2 or 3 photographs (photo size either 8 x 10 or 11 x 14 mounted on a stiff material (Matte board or foam board)).

*Bring your photo(s) and Registration form to the Spring 2019 MCCB Conference. Print off the form from the www.mccb1.org website or below in this letter and fill it out.

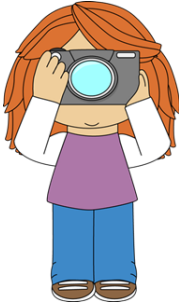
*Prizes will be awarded as determined by attendee voting. Each conference attendee may vote twice by tickets. Voting ends Saturday afternoon with awards given during dinner.

*All submitted photos will be entered in a silent auction with earnings donated to MCCB. Bidding will start at \$5 and at the end of the auction (Saturday afternoon) highest bidders will be determined. Hopefully many people will be able to take home a beautiful photograph.

* On page 3 of this document are some suggestions to reduce cost of photograph prints and matting and framing.

Enter the 7th MCCB Photography Contest

Registration Form



Your Name: _____

School: _____

Contact phone: _____

Contact email: _____

* Photo Entry #1 Title:

* Photographer's Name:

* Check the category ____ animal ____ plant ____ scenery ____ misc./other of your photo:
Shooting/Subject Information:

** Photo Entry #2 Title:

** Photographer's Name:

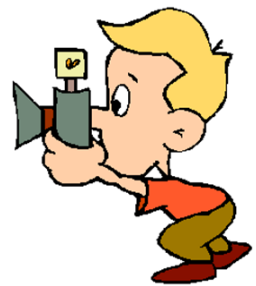
** Check the category ____ animal ____ plant ____ scenery ____ misc./other of your photo:
Shooting/Subject Information:

*** Photo Entry #3 Title:

*** Photographer's Name:

*** Check the category ____ animal ____ plant ____ Scenery ____ misc./other of
your photo:

Shooting/Subject Information:



Ways to Reduce Cost to Photographer:

Printing photographs and mounting and framing them can all be expensive. There are some ways to reduce the cost of the whole process. Here are some suggestions:

- If you have a color printer at home you can purchase photo paper at Office Depot, Staples, Meijers, etc and print your own at home.
- Have the photograph printed somewhere else and then you attach it to a matt board or foam board cut to the same size with spray adhesive (from Michaels, JoAnnes or other craft stores).
- Sign up with Walgreens, CVS, Meijer or Costco, etc at their photo dept. Easily done online. They will send discount coupons for printing almost every week. You can upload your photos, select size and pick them up at a nearby store. I like Walgreens as they have 40% off prints (no quantity limit) a few times a month.
- Watch Sunday papers for circulars for Michaels or JoAnnes (craft stores). They often have 50% off coupons for items. Buy a precut matt at the reduced price and behind your photo include a same size mat or foam board. You create 3 layers: the precut mat on top, your photo and behind it the backing board. (Walmart and Meijers also sell standard size precut matts.)
- With enough lead time, thrift stores, garage or estate sales often have inexpensive frames for sale. Purchase them often for less than \$5. Frames are not required for submission of photos, but they do improve the presentation.



A Statewide Network for Biology Educators

2020 Spring Conference Registration Form

Registering early helps us to coordinate catering, seating, and other conference events. **Please register by May 8th, 2020.**

Membership renewal reminder: MCCB memberships need to be renewed prior to or at every Fall Conference. See the membership registration form at www.mccb1.org for more details or e-mail Isis Arsnoe at iarsnoe@ncmich.edu if you are uncertain of your membership status. If your address or teaching status has changed, please submit an updated membership form to Isis Arsnoe (Membership Chairperson).

The Spring (2020) Conference is being held at Mid Michigan College (Mt Pleasant campus) Friday and Saturday, **May 29th & 30th**. A schedule and conference details can be found in the MCCB Newsletter and at the MCCB website at <http://www.mccb1.org/mccb-conferences/>. The website will be updated as new information about the meeting is received. You may register online at: <http://www.mccb1.org/rsvp/> or by completing and sending the form below.

Name: _____

Address: _____

Email: _____ Phone: _____

Subjects taught: _____ Institution: _____

Please indicate your activities, meals and costs below:

Annual membership dues (*full-time \$40, part-time & retired \$15*) year begins in September \$_____

Conference Fee (both days) \$40 x _____ (number attending) = \$_____

Friday night only or Saturday only \$20 x _____ (number attending) = \$_____

Please indicate which meals you will be eating:

Friday Dinner (pasta buffet) _____ (number attending)

Saturday Breakfast (continental) _____ (number attending)

Saturday Lunch (taco bar) _____ (number attending)

Please indicate any special dietary restrictions here: _____

TOTAL ENCLOSED: \$_____

Please make checks payable to MCCB or Michigan Community College Biologists.

Send registration form and check to: (Jeff Percha, Mid Michigan College,
2600 S Summerton Road, Mt Pleasant, MI 48858)

Questions: Contact Jeff Percha at jpercha@mich.edu or (989) 386-6684

MCCB Spring Conference Tentative Schedule

Friday May 29	
5:30-6:00 pm	Check in
6:00-7:00	Dinner (pasta buffet)
7:00-8:00	Heather Wesp "There and Back Again - Travel Adventures in Australia and New Zealand"
8:00-10:00	Social time

Saturday May 30	
6:00-8:00	Bird Walk w/ Ryan Dziedzic (meet at a local park)
8:00 8:20 am	Continental breakfast
8:20 - 8:30	Greeting from MMC VP of Academics Jennifer Fager
8:30-9:00	MMC campus tour Photo Contest voting begins
9:00-10:30	Dr. Kevin Pangle (CMU) "Current Great Lakes research at CMU"
10:30-11:00	Break and Exhibitor time
11:00-11:50	Break out session 1 Leigh Kleinert (GRCC) - Round-table discussion on benefits of hosting a Community STEM event at your institution. Dr. Matthew Badtke (JC) – "The Challenges of a Captive Audience - An introduction to the Jackson College Corrections Education Program (JCCEP)"
12:00-1:00	Lunch (taco bar) and membership meeting
1:00-2:30	Speaker to be determined, but preferred topic is "Effect of Climate Change on Zoonotic Diseases"
2:30-3:00	Break and exhibitor time Photo Contest voting ends
3:00-3:50	Break out session 2 Trish Finerty and Dr. Anne Quinn (MMC) – Round-table discussion centered on issues related to adjunct faculty Jeff Percha (MMC) – Round-table discussion on challenges associated with Dual-enrollment Programs.
4:00-4:15	Closing remarks, Photo Contest results, and drawing for door prizes