

Secretary's Report

To be presented Friday, October 6, 2017, at Indiana University—Purdue University at Indianapolis.

The Indiana Mathematical Association of Two-Year-Colleges met Friday, April 7, 2017, on the Lawrence campus of Ivy Tech Community College. At 10:05 am, President Becky Pohle welcomed 22 members and guests in room 243. She reminded us that we would hold elections, and to consider accepting the call to serve as an officer or board member. She informed us that we would continue the plan to adjust the by-laws, including the consideration of adjusting the terms of office for the president.

Luanne Benson-Lender and Kevin Foster, Ivy Tech Community College—Bloomington, presented the first session. They described the plan for the Bloomington campus to switch to the use of Open Education Resources in nearly all 100-level math courses. OER materials are those on-line resources (books, etc.) that are available for use and distribution to students and faculty free of charge, and with no need to obtain a publisher's permission. The positive results they expect to see are lower cost to the student and access to class materials on the first day of the semester, regardless of financial aid status. The pilot courses have noted at least four potential challenges: A lack of appropriate resources; inconsistent quality control of the products; the materials require more effort to coordinate with existing courses; and technical difficulties such as incompatible hardware that students have available and the speed and bandwidth of available connections.

MATH 100 Intermediate Algebra uses Open Stax *College Algebra*, from Rice University and the Gates Foundation. The PDF text materials are available for no charge from openstax.org. To print the files, the site charges \$52. This compares favorably with Pearson's Martin-Gay text, with MML, at \$256. For homework, the class will use WeBWork, a system of pre-existing problems. This site has free access, compared to Pearson's MyMathLab system, at \$104.95, stand-alone. Currently, the book is not on the list of acceptable textbooks, but the campus has permission to use it. In response to the use of OER materials, WebAssign lowered its cost. Regarding the use of WeBWork files, the campus has to keep them on a local server.

For MATH 135 Finite Mathematics, Ivy Tech Bloomington must insure that the course matches IU-Bloomington's class. The Ivy Tech instructors are compiling a PDF e-text, and will pilot it in the 2017 summer semester. The cost will compare favorably to Maki's \$159.75 book. They wrote their own WeBWorK assignments, which they have been piloting in the spring 2017 semester. This was in response to restrictions on using IU's WeBWorK problems. However, \$0 vs. \$60.50 for six months of MathXL access should make the effort worthwhile for Ivy Tech students.

College Algebra MATH 136 uses Open Stax *Precalculus*, PDF format, \$0 (\$42 to print), compared to \$140.75 for Swokowski with WebAssign. The WeBWorK homework files compare to WebAssign stand-alone at \$100.

MATH 137 Trigonometry with Analytic Geometry—left for the future. MATH 201 Brief Calculus must stay with the Hughes-Hallett textbook, but the instructors are developing WeBWorK homework assignments.

MATH 211 Calculus I uses Open Stax *Calculus Volume I*, vs. Stewart's text at \$335.75, new. WebAssign, which is an ally of Open Stax, charges \$33.95 per term, \$50 for two terms.

Luanne also told us of the use of the free Open Stax *University Physics I* (\$48.50 to print) for PHYS 101 Physics I, vs. Knight's text at \$200.50, which includes access to the Mastering Physics website, and \$33.95 for one term of WebAssign. She also listed the courses that the department plans to convert to OER in the future: MATH 122 Applied Technical Mathematics; MATH 023 Essentials of Algebra I (which she expected to be easy to convert); MATH 200 Statistics; and MATH 141 Mathematics for Elementary Teachers.

In response to a question, Kevin told us the change to OER came from the Department, with the recommendation of some individual faculty members. Kevin said he has been advocating the use of WeBWorK for a while. Paul Hessert noted that the ASAP classes need too many books at one time for financial aid to cover them, so OER may be the solution. The departmental switch for the first courses was actually the first time that any instructors had used OER texts.

Kevin finished the presentation by describing some practical notes that he and his fellow instructors learned as more classes switched to OER materials. He pointed out that in WeBWorK, instructors should use dynamic images, not static ones. The system does allow multiple choice answer shuffling. Instructors will need to do some coding, but the coding is similar to PERL and LaTeX, and uses some proprietary WeBWorK formatting, so the learning curve is not too steep. The Finite

Math instructors found some set-up challenges, as IU insists that students not use calculators in the course to determine exact answers, while WeBWorK's default is to expect calculator use to create approximate results. In fact, in some problems, WeBWorK interprets an arithmetic expression as a correct answer. For example, $2/4$ works as $1/2$ (though sometimes 0.5 is counted incorrect). Finally, Kevin noted that the instructor must want to do the coding, but it does become less daunting with time and practice.

The second presentation had Bill Mandella, Ivy Tech Community College—Lawrenceburg, describe Math Circles for us. Math Circles are groups of people with an interest in mathematics who join to discuss math topics, especially with the intent to examine and try to solve interesting problems. Bill has been to a few and has enjoyed them.

He described for us the two general types that have developed over the last 30 years. First are Student Circles, whose goal is to get students interested in mathematics. Leaders usually organize them by grade level, and though sometimes thought of as an activity for gifted students, many are accessible to students of varying ability. The second type are Teacher Math Circles. Teachers, usually K – 12, create the meetings for themselves. Occasionally, the teachers organize the Circles to serve as professional development activities.

Math Circles have common themes. A working mathematician leads the session. The session is problem solving oriented. The leader presents one (or more) significant, non-trivial problem. The problem should be what Bill called low threshold, high ceiling. The problem should be accessible to all persons present, but lead to challenging mathematics, which may require more than one session to work through, and may actually be a problem with no complete solution. One goal a Circle is to promote collaboration. In fact, a key goal is to help attendees see thinking mathematically as a creative process.

Bill described some history of Math Circles. They began in Europe many years ago. Mathematicians imported them into the United States in the 1990s from Eastern Europe. There are over 180 Math Circles **operating** in the US.

Finally, Bill listed a few Math Circles. The Circle he attend meets 9 – 12 on most Saturday mornings in Cincinnati, Ohio (cincymathcircle.wikispaces.com). The national website is www.mathcircles.org.

President-elect Luanne Benson-Lender presented the third session. She described for us the goal of the Bloomington region to create at least a couple of Service Learning projects for each department. The activities are to be Community Service projects related to course objectives for at least one course. The project must be an activity that is of some importance to the client for which it is developed.

The goals are to create good engagement between the student and the course material, give the student exposure to the community, and help the student gain some real-world experience. These goals lead to several challenges: Find a partner; integrate the project with course objectives; handling the extra work—both student and teacher; the instructor must learn to be a project manager; and students may misunderstand the expectations of the Service Learning project.

Luanne has organized 16 projects since fall 2011. These projects have been with five different community clients and eight elementary schools. Several of the projects have been with Luanne's statistics classes. These projects include:

- 1) Fall 2012 a demographic analysis for Eastern Greene schools;
- 2) Spring 2013 and spring 2014 a client survey for People & Animal Learning Services;
- 3) Fall 2014 a family survey for Monroe County United Ministries;
- 4) Spring 2015 and fall 2015 a volunteerism survey a course statistics analysis for the Ivy Tech Community College Bloomington campus;
- 5) Spring 2016 a survey critique for the Monroe County United Ministries.

The students must turn in a check-in assignment, including a rough draft of the report for 20 points. The report itself counts worth 70 points, with 30 points for the correctness of the statistical information and 40 points for appropriate graphs. The last 10 points are for the presentation of the report in class. Luanne provided a sample piece of the project, though smaller in scope than what she expects from the students. She also compiled the student work into a final report for the client.

In her Math for Elementary Teachers course, Luanne had the students make games and manipulatives for local elementary school teachers. The students have made and donated 65 sets. Regarding the points, the 20 points assigned for the first part of the statistics projects was broken into 10 points for the proposal with rough draft and 10 points for creating a prototype and submitting it for peer feedback. A member

present asked if the students kept a set of the game or manipulative for themselves. Luanne did not keep track of that.

Following this session, we ate lunch.

Business Meeting

President Becky Pohle called the Business Meeting to order at 1:05 pm. 17 members remained for the meeting. She welcomed us and asked us to introduce ourselves, including those who are officers.

Old Business

We accepted the secretary's report.

Scholarship Committee chairperson Brian Bright informed us of 8 applicants.

They were mostly complete, which led to a discussion regarding the application form. [We briefly interrupted the committee report to accept the treasurer's report, which follows.] The committee recommended a strong candidate, who is currently in a Brief Calculus class. We moved to offer future candidates \$600, to start at the fall 2017 meeting. We accepted the motion unanimously. We then unanimously accepted the committee recommendation to award J. Gedler \$500.

Next, we acted on this motion from the members of the committee: The committee will adjust the Scholarship form to include '*Have completed a course with a grade of B, or better, which has an Intermediate Algebra prerequisite*' and to clean up wording on the form. The committee also agreed to present the reworded form to the Board for comment before sending it out for Fall Semester 2017. With that action included, the members present accepted the motion unanimously.

Hank Hernandez presented the treasurer's report. It listed balances of \$1004.39 and \$1504.06 in savings and checking, respectively, as of today.

Next, we accepted unanimously the motion to send \$100 to the AMATYC Hospitality room for the November 2017 San Diego conference. Treasurer Hank Hernandez will send as soon as possible in order to see

if will arrive in time to have the INMATYC name printed on the poster listing names of donors.

One of our **members** gave us some sad news. Former INMATYC president, and Ivy Tech professor and administrator, Y Wacek died earlier this year. Those who remembered her noted her thoughtful consideration of the issues that mathematics professors face when teaching at the freshman and sophomore levels.

New Business

We discussed updates to the INMATYC by-laws. We agreed to hold a vote at the fall meeting, after members have had a chance to share further input.

A member presented a motion to change the by-laws now, since we have discussed this several times already. The motion is to change the sequence of terms of office for the president to 1 year for the president-elect, 2 years for the president, and 1 year for the past-president. After discussing this a bit more, the members present accepted this motion to change the by-laws to reflect this. Becky **Pohle** agreed that she would stay on as president for the next year, and president-elect Luanne Benson-Lender agreed to continue for another year.

Next, we held elections for the remaining offices. We re-elected Hank Hernandez, IUPUI, as treasurer. We elected Paul Kamber, Ivy Tech—Gary, as secretary. The new board members are David Murchek, Ivy Tech—Valparaiso, Ren Simmons, Vincennes University, and Ed Gallo, Sinclair Community College (retired). Their term runs until 2020.

We confirmed that we would hold the fall 2017 meeting at IUPUI on October 6. We will hold the spring 2018 meeting at Ivy Tech Community College—Bloomington. We decided to hold it on April 6, 2018.

We adjourned the meeting at 2:25 pm.

Board Meeting

President **Pohle** called the Board meeting to order at 2:30 pm. Member present: Becky **Pohle**, Paul Hassert, Luanne Benson-Lender, Paul

Kamber, David Murchek, Ed Gallo, Ren Simmons, Hank Hernandez, and Brian Bright. Becky asked us to make sure we provided our current e-mail addresses.

For a possible by-laws change to present to the members in the fall, we considered whether to replace a board member whom we elect to another officer position. After discussion, we said no to this change.

Next, we (finally) voted to accept the changes to the by-laws, with the addition of the adjustment of the president's term of office. These have been on the table since 4/13/2012.

We discussed whether we should adjust the 3-year board member term length. We decided not to change that term of service. Likewise, we decided not to propose a change to the election cycle to have the Board elected at the fall meetings. Because of the change in the term for the president, we decided to propose that we elect the president-elect at the fall meeting of even-numbered years. The change in office for all officers would be November 1 following the election. Board member terms would begin July 1 of the summer following the election.

We discussed whether the Board could meet electronically, or whether we might schedule a meeting at a time that did not immediately follow the regular INMATYC meeting. The consensus was that if we needed a meeting at **time** other than right after a regular meeting, an electronic meeting would be more convenient.

The officers will send out the by-laws, as updated today, and the proposed changes, to the members by July. We agreed to hold the Business portion first during the regular INMATYC meeting on October 6, 2017.

We adjourned at 3:35 pm.

Respectfully submitted,
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