GREATNESS STEMS FROM IOWANS | IOWA LAKES COMMUNITY COLLEGE
NORTHWEST IOWA REGION GOVERNOR'S STEM ADVISORY COUNCIL

NORTHWEST STEM ADVISORY BOARD MEETING MINUTES
Tuesday, March 22, 2016
Campus Center Board Room, 3rd Floor Campus Center
Dordt College, 200 South 18th Street
Sioux Center, IA

Members in Attendance: Mary Trent, Nancy McDowell, Kathleen Bottaro, Dr. Eric Forseth, Linda Gray, Jody Still Herbod, Wade Weber, Dr. John Bedward, Barbara Den Herder, and Mark Zabawa.

Guests: Justin Vander Werff, Associate Professor of Engineering; Nolan Van Gaalen, Professor of Engineering; Nathan Tinsel, Associate Professor of Statistics/Director for Research and Scholarship; Leah Zuidema, Associate Provost/Dean of Curriculum & Instruction; Janet Leifeld.

Members Absent: Derek Brower

1. Tour of Science and Technology Center

Justin Vander Werff, Associate Professor of Engineering, was our guide on a tour of the Science and Technology Center which houses the following academic programs: physics, chemistry, agriculture, engineering, biology and environmental studies. The Science and Technology construction project is well under way with plans for completion by fall 2017. The first phase of the project was completed in 2014 with new classrooms and study spaces, as well as a new engineering wing. The final phase will be completed by fall 2017 with the addition of new and expanded classrooms and laboratory facilities. A rooftop laboratory includes an observatory, green house, as well as a solar lab with components designed by past engineering students. A link to the amount of energy produced through the solar lab is available for public viewing https://enlighten.enphaseenergy.com/pv/public_systems/343b428086/overview.

In addition to the updated building facilities, we learned about the following interesting projects:

- Senior Design Projects - Engineering students work in teams to tackle specific design programs during their last two semesters. The project culminates with a presentation at the end of their senior year. The Liberian Bridge project in an example of one such project, evolving out of a need identified by Dordt students during a mission outreach trip to Liberia. Dordt engineering students designed and built a bridge that would allow villagers to expand farming opportunities to benefit the community and church.
- Engineering students have the opportunity to participate in ASCE (American Society of Civil Engineers) regional competitions. This year the Dordt team placed 2nd in Bridge Display in the Steel Bridge completion and hosted the Concrete Canoe event. Teams competed represented the following engineering programs: Iowa State University, University of Iowa, University of Minnesota, South Dakota State University, University of Manitoba and Minnesota State University, Mankato and Dordt College.

2. Update on STEM Festival

   Dr. Nolan Van Gaalen, Engineering Professor, shared information on the annual STEM Festival held each spring for middle school students. This year the event was held on Feb 20 with over 160 students in 4th - 8th grade attending. Dordt College and Iowa State Extension and Outreach hosted the event, with support from NW Iowa Regional STEM. Dordt College students, students from Northwestern College in Orange City, and area 4-H members acted as volunteers. Students had the opportunity to attend 4 of the 14 options during the day. The following sessions were noteworthy for this festival:
   - ISU Virtual Reality FLEX team from Ames provided multiple sessions with 3-D printing, design experimentation, stressing skills needed for the future.
   - C6 Biofarms (Downloadable app to understand energy, emission issues with farming)

3. Overview of STEM Highlights at Dordt College

   Dr. Nathan Tintle, Associate Professor of Statistics/Director of Research & Scholarship, provided an overview of STEM highlights at Dordt College.

   - Dordt College sponsors several STEM outreach opportunities for K-12 students throughout the year: Math competitions (4th – 12th grade), STEM Fest (4th – 8th grade), Ag Day (middle and high school students), Idea Fest, IDEAS summer camp (high school students), and Dordt Discovery Days (middle school students). Actively collaborates with local school district in designing interactive learning environments.
   - The college exhibits a strong commitment to provide students with updated STEM facilities. New $12 million science building with a $12 remodel of Biology, Chemistry, Agriculture, and Physics spaces scheduled for 2016 - 2018. In addition, equipment for a parallel computing cluster has been funded externally.

- Faculty and students are actively involved in research, both in the classroom and during intensive research projects over the summer. External grant sources are used to fund research and develop STEM curriculum.
- Dordt College offers the following STEM programs of study: Agriculture, Engineering, Actuarial Science/Statistics/Mathematics, Computer Science, Nursing, Biology, Chemistry, Astronomy, Physics and Environmental Study. Discussions underway to expand professional-technical education potentials in agriculture and allied health.

4. 2016-17 Scale-Up Programs – Review of recommendations/Selection of awards

Advisory board members reviewed funding recommendations and discussed options during selection of recipients for the 2016-2017 Scale-Up programs.

- **Case** – Two applicants. Selection criteria – Preference for first time awardee. Recommend awarding Alta-Aurelia High School (first time awardee, serving 32 students, first choice of programs, high need area).
- **FRC** – Two applicants. First time offered as a scale-up. Capstone of a series of programs, niche opportunity for high school students already focused in this area. Future fundraising events will cover costs. Recommend awarding Spencer High School and Spirit Lake High School (first choice in programs).
- **HyperStream** –Recommend awarding Keumper Catholic School, Sacred Heart Catholic School, and Spencer Middle School (first time requesters, first time using Hyperstream, ranked Hyperstream first in choice of programs).
- **ST Math** –Recommend awarding every application except for those lower ranking (3rd of 3 choices).
- **Power Teaching Math** – Regional plus DC professional development. $3000 licensing fee. Molly will find out cost for programs in second year, if fees reflect first year of implementation. Unique method of teach math in a cooperative learning environment. Recommend awarding all four applicants.
- **SEPUP** – Science Education for Public Understanding Program. Seven first-time programs with little or no previous Scale-Up participation. One-time fee for resources (same fee regardless of textbook number required). Lab materials included the first time, but will need to be replenished. Recommendation awarding all seven applications.
- **PLTW, PBS** – Principles of Biomedical Sciences. $12,000 per educator. Discussion as to awarding high cost programs, low student numbers. Recommend not funding these programs.
- **EiE** – Engineering is Elementary. Reviewed scores and sustainability. Ruled out applicants who received it previously. Recommended awarding all new applicants as well as those not receiving EiE in the past.

- **MSC** – Making STEM Connections. Geared to grade levels (K-8). Kits are replenish-able. Overwhelming response by applicants to this Scale-Up opportunity. Recommend to award most applicants except those marked as questionable.

5. **2016-2017 Festival Budget** – Average contribution for festivals in the past has been $1000. Five festivals were funded in 2015-2016, though NW Iowa Regional STEM provided additional support for several others. Recommendation to budget entire amount allowable to fund festivals.

Next Meeting

Thursday, May 2, 2016; 2:30 – 4:00 pm
Loess Hills Elementary School, Sioux City.

- To join by computer, please click the following: https://uni.zoom.us/j/2973548501.
- To join by phone, dial +1 (415) 762-9988 and enter Meeting ID: 297 354 8501.