AGENDA
Formal Session of the Board of Trustees
Michigan Technological University
9:00 a.m. – May 4, 2018
Ballroom B – Memorial Union Building

I. Approval of Agenda

II. Opening Remarks
A. Chair’s Comments
B. President’s Comments

III. Committee Reports
A. Academic Affairs Committee - Linda Kennedy
   - Provost Report-Dr. Jackie Huntoon, Provost & Vice President for
     Academic Affairs
   - Research and Sponsored Programs Report-Dr. David Reed,
     Vice President for Research
   - Student Affairs and Advancement Report-Dr. Les Cook, Vice President
     for Student Affairs and Advancement
B. Audit and Finance Committee – Steve Tomaszewski
   - Treasurer’s Report-Ms. Julie Seppala, Treasurer
C. Leadership Committee – Brenda Ryan
D. Presidential Transition Committee – Derhun Sanders

IV. Consent Agenda
A. Approval of Minutes
B. Gifts
C. Resignations, Retirements and Off Payroll
D. Approval of External Auditor

V. Action/Discussion Items
A. Employee Recognition
B. President Emeritus Rank
C. Emeritus Rank
D. Appointments with Tenure
E. Appointments, Not Involving Tenure and/or Promotion
F. Appointments, Involving Tenure and/or Promotion
G. Promotions
H. Proposal for a PhD in Statistics
I. Proposal for a Master of Science degree in Statistics
J. Proposal for a Master of Science degree in Applied Statistics
K. FY 2018-2019 General Fund Operating Budget
L. Approval of Strategic Plan
M. Election of Chair and Vice Chair
N. Revision to Board Policy 6.1. Faculty Definitions
O. Revision to Board Policy 6.4. Academic Tenure and Promotion
P. Board Policy 15.3. Research Data Principles
Q. Ordinance No. 4 – Tampering with Safety or Security Devices
VI. Reports
   A. Undergraduate Student Government Report – Max Sexauer
   B. Graduate Student Government Report - Hossein Tavakoli/Apurva Baruah
   C. University Senate Report - Dr. Martin Thompson

VII. Informational Items
   A. Analysis of Investments
   B. University Issued Bond Balances
   C. Research and Sponsored Programs Report
   D. Advancement and Alumni Engagement Report
   E. Recent Media Coverage
   F. Employee Safety Statistics

VIII. Other Business

IX. Public Comments

X. Informal Closed Session for Review of Pending Litigation

XI. Adjournment
I. APPROVAL OF AGENDA

RECOMMENDATION: That the Board of Trustees approves the agenda of the formal session of May 4, 2018 as distributed to the Board.
II. OPENING REMARKS

A. Chair’s Comments

B. President’s Comments
III. COMMITTEE REPORTS

A. ACADEMIC AFFAIRS COMMITTEE – Linda Kennedy
   - Provost Report - Dr. Jackie Huntoon, Provost & Vice President for Academic Affairs
   - Research and Sponsored Programs Report – Dr. Dave Reed, Vice President for Research
   - Student Affairs and Advancement Report – Dr. Les Cook, Vice President for Student Affairs and Advancement

B. AUDIT AND FINANCE COMMITTEE – Steve Tomaszewski
   - Treasurer’s Report - Ms. Julie Seppala, Treasurer

C. LEADERSHIP COMMITTEE – Brenda Ryan

D. PRESIDENTIAL TRANSITION COMMITTEE–Derhun Sanders
Provost’s Report

Jackie Huntoon

May 4, 2018
Tenure, Promotion and Reappointment

5 Promotions from Lecturer to Senior Lecturer
• Katrina Black – Physics
• Jaclyn Johnson – Mechanical Engineering – Engineering Mechanics
• Aneet Narendranath – Mechanical Engineering – Engineering Mechanics
• Karin Schlenker – Humanities
• Radheshyam Tewari – Mechanical Engineering – Engineering Mechanics

1 Promotion from Senior Lecturer to Principal Lecturer
• Michael Meyer – Physics
Tenure and Promotion

10 Recommendations for Promotions from Assistant Professor without Tenure to Associate Professor with Tenure

11 Recommendations for Promotions from Associate Professor with Tenure to Full Professor with Tenure
Kudos to Faculty Considered for Tenure and Promotion

From Penn State:
“They are an established leader, who will continue to advance their field for many years to come.”

From Vanderbilt University:
“... has been a leader at Michigan Tech by bringing together national and international collaborators to study the difficult problem...”

From Texas Tech University:
“They have proven ingenious in finding and obtaining outside funding to support their work. Their reputation and accomplishments are perfect, and I recommend their promotion and tenure without reservation.”

From The Colorado State University:
“ Their record as a faculty member at MTU, is of the highest quality, in all aspects of research, service and teaching.”
Kudos Continued

From Case Western Reserve University:
“*They* have demonstrated a record of contributions to the...discipline. During this process, *they* have achieved [a] very impressive record with educational excellence.”

From Florida International University:
“The legacy of Dr. X’s research acumen will be carried by several graduate and undergraduate students.”

From Northeastern University:
“They have unique capacity, knowledge and skills to handle such challenging problems that require non traditional and multidisciplinary approaches.”
Kudos Continued

From University of Missouri-Columbia:
“Professor X clearly cares deeply about all aspects of what it means to be a faculty member at a research-oriented yet student-focused state university. I would almost certainly accept into my graduate research program any X alum who earned X’s highest level of endorsement; and likewise for...MTU undergraduates who wished to spend a summer REU with me.”

From Indiana University - Purdue:
“Professor X’s record clearly reveals an excellent and engaged scholar who has contributed significantly to their discipline and who is engaged in pioneering research ...that promises to add great value to scholarship.”

From University of Oxford:
“They are well placed to make even greater scientific impacts in the coming decades.”
Leadership Transition – College of Engineering

Wayne D. Pennington

Michigan Tech History
• Dean, College of Engineering 2014 – 2018
• Department Chair, Geological & Mining Engineering & Sciences 2003 – 2014
• Professor of Geophysics 1994 – present

Janet Callahan

• Chair, Micron School of Materials Science & Engineering, Boise State University 2016 – present
• Founding Associate Dean, College of Engineering, Boise State University 2005 – 2016
• Professor of Materials Science & Engineering, Boise State University 2004 – present
Leadership Transition – College of Sciences & Arts

Bruce E. Seely

Michigan Tech History
• Dean, College of Sciences & Arts
  2008 – 2018
• Department Chair, Social Sciences
  2002 – 2008
• Asst./Assoc./Full Professor of History
  1986 – present

David J. Hemmer

• Chair, Department of Mathematics, University at Buffalo – SUNY
  2012 – present
• Director of Undergraduate Studies, Department of Mathematics, University at Buffalo – SUNY
  2007 – 2012
• Assoc./Full Professor of Mathematics, University at Buffalo - SUNY
  2007 – present
Leadership Transitions – School of Technology & School of Forest Resources & Environmental Science

James Frendwey, SoT

Michigan Tech History
• Dean, School of Technology 2008 – 2018
• Associate Dean, School of Business 2002 – 2007
• Asst./Assoc. Professor of Management Science & Operations Management 1989 – present

Terry Sharik, SFRES

Michigan Tech History
• Dean, School of Forest Resources & Environmental Science 2012 – present
• Assoc./Full Professor of Forest Botany 1986 – 1993 & 2012 – present
Leadership Transitions

Historical Knowledge Leaving Michigan Tech

98
Combined years of service
as faculty

53
Combined years of service
as administrators
Leadership Transitions continued

New Deans

College of Engineering
Janet Callahan
from Boise State University

College of Sciences & Arts
David J. Hemmer
from University of Buffalo – SUNY

School of Forest Resources & Environmental Science
Interviews concluded April 17, 2018

School of Technology
In Negotiations

Michigan Tech
Glenn Mroz

• Undergraduate/Graduate student in forestry, 1970-1976
• Instructor/Visiting Instructor, 1976-1983
• Asst./Assoc./Full Professor, School of Forestry and Wood Products, 1983-2002
• Full Professor, School of Forest Resources and Environmental Science, 2018-present
• Assoc. Dean/Interim Dean/Dean, School of Forest Resources and Environmental Science, 1999-2004
• Interim Dean, School of Technology, 2003-2004
• President, Michigan Technological University, 2004-2018

Michigan Tech
Thank you
Sponsored Program Summary
3rd Quarter FY18
May, 2018

David Reed
Vice President for Research
Outline

• Sponsored Awards, 3rd Quarter FY18
• Research Expenditures, 3rd Quarter FY18
• Intellectual Property/Commercialization, 3rd Quarter FY18
• Corporate Sponsorship, 3rd Quarter FY18
• Research Administrative Support
## Sponsored Awards, 3rd Quarter FY18

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Proposals Submitted FY '18 as of 3/31</th>
<th>Awards Received FY '18 as of 3/31</th>
<th>Awards Received ($) FY '18 as of 3/31</th>
<th>Variance FY '18 as of 3/31</th>
<th>FY '17 as of 3/31</th>
<th>Variance ($)</th>
<th>Variance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA</td>
<td>44</td>
<td>19</td>
<td>4,155,923</td>
<td>2,636,793</td>
<td>173.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>157</td>
<td>37</td>
<td>6,781,238</td>
<td>7,005,727</td>
<td>-234,489</td>
<td>-3.2%</td>
<td></td>
</tr>
<tr>
<td>US Department of Agriculture</td>
<td>39</td>
<td>29</td>
<td>1,523,412</td>
<td>1,256,639</td>
<td>-45.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Department of Defense</td>
<td>69</td>
<td>75</td>
<td>9,351,470</td>
<td>9,831,297</td>
<td>-4.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Department of Education</td>
<td>2</td>
<td>2</td>
<td>35,317</td>
<td>29,907</td>
<td>-45.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Department of Energy</td>
<td>29</td>
<td>12</td>
<td>1,016,626</td>
<td>4,791,366</td>
<td>-78.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Department of HHS</td>
<td>29</td>
<td>7</td>
<td>1,585,333</td>
<td>1,685,759</td>
<td>-6.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Department of Transportation</td>
<td>8</td>
<td>9</td>
<td>1,495,825</td>
<td>2,856,231</td>
<td>-47.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Federal Agencies*</td>
<td>31</td>
<td>26</td>
<td>1,846,492</td>
<td>1,735,309</td>
<td>72.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Agency Total</td>
<td>408</td>
<td>228</td>
<td>28,929,636</td>
<td>32,534,777</td>
<td>-11.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of Michigan</td>
<td>35</td>
<td>22</td>
<td>2,846,748</td>
<td>754,878</td>
<td>171.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>142</td>
<td>125</td>
<td>5,721,452</td>
<td>6,176,321</td>
<td>-7.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign</td>
<td>25</td>
<td>20</td>
<td>1,286,939</td>
<td>1,097,578</td>
<td>17.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Other Sponsors</td>
<td>52</td>
<td>30</td>
<td>1,212,847</td>
<td>1,193,959</td>
<td>1.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gifts**</td>
<td>N/A</td>
<td>10</td>
<td>2,336,618</td>
<td>2,368,769</td>
<td>-1.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crowd Funding</td>
<td>N/A</td>
<td>10</td>
<td>13,601</td>
<td>13,001</td>
<td>4.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>662</td>
<td>633</td>
<td>41,447,251</td>
<td>44,137,186</td>
<td>-6.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.
## Research Expenditures, 3rd Quarter FY18

<table>
<thead>
<tr>
<th>College/School/Division</th>
<th>FY2018</th>
<th>FY2017</th>
<th>Variance</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration*</td>
<td>2,858,818</td>
<td>2,819,246</td>
<td>39,572</td>
<td>1.4%</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>21,955,410</td>
<td>17,796,598</td>
<td>4,158,812</td>
<td>23.4%</td>
</tr>
<tr>
<td>College of Science &amp; Arts</td>
<td>12,783,742</td>
<td>12,507,981</td>
<td>275,761</td>
<td>2.2%</td>
</tr>
<tr>
<td>Great Lakes Research Center**</td>
<td>256,473</td>
<td>108,305</td>
<td>148,168</td>
<td>136.8%</td>
</tr>
<tr>
<td>Pavlis Honors College</td>
<td>194,377</td>
<td>215,057</td>
<td>(20,680)</td>
<td>-9.6%</td>
</tr>
<tr>
<td>Keweenaw Research Center (KRC)</td>
<td>6,552,805</td>
<td>5,251,037</td>
<td>1,301,768</td>
<td>24.8%</td>
</tr>
<tr>
<td>Michigan Tech Research Institute (MTRI)</td>
<td>6,296,773</td>
<td>6,089,643</td>
<td>207,130</td>
<td>3.4%</td>
</tr>
<tr>
<td>School of Business &amp; Economics</td>
<td>1,176,417</td>
<td>1,136,021</td>
<td>40,396</td>
<td>3.6%</td>
</tr>
<tr>
<td>School of Forest Resources &amp; Environmental Science</td>
<td>4,139,788</td>
<td>4,293,538</td>
<td>(153,750)</td>
<td>-3.6%</td>
</tr>
<tr>
<td>School of Technology</td>
<td>373,177</td>
<td>419,228</td>
<td>(46,051)</td>
<td>-11.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>56,587,780</strong></td>
<td><strong>50,636,654</strong></td>
<td><strong>5,951,126</strong></td>
<td><strong>11.8%</strong></td>
</tr>
</tbody>
</table>

*Includes the Vice Presidents, Provost, and others who report to a VP, Provost or the President. Except for the research institutes that report to the VPR.

**Includes GLRC department (non-academic researchers) expenditures only. All other GLRC center expenditures are shown in the researchers’ respective colleges.
## Intellectual Property, 3rd Quarter FY18

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>+/- %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosures Received</td>
<td>18</td>
<td>22</td>
<td>-18 %</td>
</tr>
<tr>
<td>Nondisclosure Agreements</td>
<td>76</td>
<td>75</td>
<td>1 %</td>
</tr>
<tr>
<td>Patents Filed or Issued</td>
<td>18</td>
<td>13</td>
<td>38 %</td>
</tr>
<tr>
<td>License Agreements</td>
<td>10</td>
<td>15</td>
<td>-33 %</td>
</tr>
<tr>
<td>Gross Royalties</td>
<td>346,860</td>
<td>311,184</td>
<td>12 %</td>
</tr>
</tbody>
</table>
Corporate Sponsorship, 3rd Quarter FY18

Sponsored Awards - Industry COMBINED Fiscal Year 2018 3rd Quarter Ended March 31, 2018

TOTAL: $11,662,309

- Defense & Space 1,990,884
- Energy 456,554
- Environmental 186,694
- Health 752,816
- Industrial Engineering 164,923
- IT Services 170,600
- Mining & Metals 358,935
- Other 520,838
- Technology 813,230
- Automotive 4,757,415
- Chemical 218,695
- Civil 64,359
- Business & Economics 254,561
- Consumer Products 951,805

Michigan Technological University
Administrative Support for Research

• Internal Information from Faculty
• External Benchmarking
• Both use information from the:
## Administrative Support for Research

<table>
<thead>
<tr>
<th></th>
<th>Michigan Tech (n=37)</th>
<th>Res High &lt; $80 MM</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal Prep</td>
<td>15%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Pre-Award</td>
<td>4%</td>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
<td>Post-Award</td>
<td>20%</td>
<td>17%</td>
<td>14%</td>
</tr>
<tr>
<td>Reporting</td>
<td>11%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50%</strong></td>
<td><strong>48%</strong></td>
<td><strong>42%</strong></td>
</tr>
</tbody>
</table>
Administrative Support for Research

• There were 8 universities that were High Research with < $80 million annual expenditures. Among them:
  – Our respondents spent less time than others on proposal preparation and pre-award responsibilities and more effort on post-award responsibilities and report preparation.
  – The percent of effort spent on finances were lower for our respondents than others, but was still considered a substantial burden.
  – Variability in our responses was higher than for other institutions.
  – Our respondents reported they need roughly 4.5 hours per week more administrative support than they currently receive.
  – 69% of our respondents indicated substantial burden with finances and 70% indicated substantial burden with personnel.
Administrative Support for Research

• FACT – An FDP initiative to develop quantitative metrics across institutions:
  – College of Charleston
  – Duke
  – Michigan State University
  – Michigan Tech
  – Northeastern
  – University of Arkansas – Medical Sciences
  – University of North Carolina – Chapel Hill
  – University of Texas – Austin
  – University of Washington
Administrative Support for Research

Michigan Tech research administrative support costs are more centralized than other institutions:
Administrative Support for Research

• Michigan Tech’s departmental administrative staff are supporting about twice as much in research expenditures as departmental staff at other institutions.
Administrative Support for Research

- Our faculty reported greater administrative burden than faculty nationally or at similar sized institutions for post-award administration and reporting.
- Our faculty reported a need for an average 4.5 hours more administrative support per week.
- We reported a much greater level of centralization of support than the group of other institutions, with a much lower level of departmental research administrative support than in the other institutions.
- This will require collective effort to address, involving process improvement, moving to electronic processes, and greater coordination.
Formal Session of the Board of Trustees - III. Committee Reports

Student Affairs and Advancement
Board of Trustees Meeting – May 4, 2018

32
**Spring 2018 Commencement Statistics**

**Undergraduate**
- 723 undergraduates degrees will be awarded
- 709 undergrads will be in attendance at the ceremony, with 14 students that will be earning more than one degree

**Graduate**
- 356 graduate degrees will be awarded
- 270 graduate students will be in attendance - with 8 earning both a Master's and PhD
- 49 PhDs (8 also earning a Master's degree), 221 Master's.
Fall 2018 Total Apps
Fall 2018 Total Deposits-Active
Fall 2018 Total Applicants
American Indian/Alaskan Native & African American/Non-Hispanic & Asian/Asian American & Hispanic/Hispanic American & Multiracial & Pacific Islander
Deposits-Active
## Fall Undergraduate 2018 Applications

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>5940</td>
<td>6276</td>
<td>+336 5.7%</td>
</tr>
<tr>
<td>Admits</td>
<td>4388</td>
<td>4611</td>
<td>+223 5.1%</td>
</tr>
<tr>
<td>Paid deposits</td>
<td>1374</td>
<td>1366</td>
<td>-8 0.6%</td>
</tr>
</tbody>
</table>
Fall Enrollment 2004-2017

Formal Session of the Board of Trustees - III. Committee Reports
Total Funds Raised FY2009-2018
As of March 31, 2018
Planned Giving Registry Historical Total
1985 - 2018
Career Services
2016-2017

415 COMPANIES, AGENCIES, AND NONPROFITS TRAVELED TO CAMPUS TO RECRUIT STUDENTS

95% OF UNDERGRADUATES ARE ABLE TO REVIVE STUDENT LOANS ON TIME

2% STUDENT LOAN RECOVERY RATE (MICHIGAN AVERAGE: 11 PERCENT)

6th HIGHEST STARTING SALARIES IN THE COUNTRY AMONG PUBLIC UNIVERSITIES (MONEY MAGAZINE)

No. 2 HIGHEST ALUMNI SALARIES IN THE STATE (PAYSCALE)

$102,000 MICHIGAN TECH GRADS’ MID-CAREER EARNINGS AVERAGE (FORBES)

No. 3 OUT OF 30 MICHIGAN COLLEGES FOR HIGHEST PAID GRADUATES (US DEPARTMENT OF EDUCATION)

6th MEDIAN STARTING SALARY $60,000

PLACEMENT RATE 92%* OF MUSKIES SECURE A JOB, ENTER THE MILITARY, OR GET INTO GRAD SCHOOL WITHIN SIX MONTHS OF GRADUATION

*pg 4
2018 Spring Career Fair
Thank you
Overview

- Condensed Statement of Net Position
- Condensed Statement of Revenues, Expenses & Changes in Net Position
- Current Fund Projected Revenues & Expenses
Balance Sheet  
Condensed Statement of Net Position  
as of March 31, 2018  
(in thousands)  

<table>
<thead>
<tr>
<th></th>
<th>University</th>
<th>Tech Fund</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Assets</td>
<td>$48,507</td>
<td>$7,176</td>
<td>$55,683</td>
</tr>
<tr>
<td>Noncurrent Assets:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Assets, net</td>
<td>237,398</td>
<td>-</td>
<td>237,398</td>
</tr>
<tr>
<td>Other Noncurrent Assets</td>
<td>61,685</td>
<td>148,689</td>
<td>210,374</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>$347,590</td>
<td>$155,865</td>
<td>$503,455</td>
</tr>
<tr>
<td><strong>Deferred Outflows of Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred Pension Amounts</td>
<td>$6,130</td>
<td>-</td>
<td>$6,130</td>
</tr>
<tr>
<td><strong>Total Deferred Outflows of Resources</strong></td>
<td>$6,130</td>
<td>-</td>
<td>$6,130</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>$24,575</td>
<td>$1,184</td>
<td>$25,759</td>
</tr>
<tr>
<td>Noncurrent Liabilities</td>
<td>156,779</td>
<td>4,690</td>
<td>161,469</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>$181,354</td>
<td>$5,874</td>
<td>$187,228</td>
</tr>
<tr>
<td><strong>Deferred Inflows of Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred Pension Amounts</td>
<td>$1,143</td>
<td>-</td>
<td>$1,143</td>
</tr>
<tr>
<td><strong>Total Deferred Inflows of Resources</strong></td>
<td>$1,143</td>
<td>-</td>
<td>$1,143</td>
</tr>
<tr>
<td><strong>Net Position</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investments in capital assets, net of related debt</td>
<td>$156,554</td>
<td>-</td>
<td>$156,554</td>
</tr>
<tr>
<td>Other net position, restricted and unrestricted</td>
<td>14,669</td>
<td>149,991</td>
<td>164,660</td>
</tr>
<tr>
<td><strong>Total Net Position</strong></td>
<td>$171,223</td>
<td>$149,991</td>
<td>$321,214</td>
</tr>
</tbody>
</table>
### Income Statement

**Condensed Statement of Revenues, Expenses and Changes In Net Position**

**As of March 31, 2018**

(in thousands)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Revenues</strong></td>
<td></td>
</tr>
<tr>
<td>Student Tuition and fees</td>
<td>$ 130,911</td>
</tr>
<tr>
<td>Grants and contracts</td>
<td>33,346</td>
</tr>
<tr>
<td>Educational Activities</td>
<td>4,251</td>
</tr>
<tr>
<td>Department Activities</td>
<td>8,367</td>
</tr>
<tr>
<td>Student Residence fees</td>
<td>26,427</td>
</tr>
<tr>
<td><strong>Total Operating Revenues</strong></td>
<td><strong>$ 203,302</strong></td>
</tr>
<tr>
<td><strong>Operating Expenses</strong></td>
<td></td>
</tr>
<tr>
<td>Salaries &amp; Wages</td>
<td>$ 100,190</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>29,237</td>
</tr>
<tr>
<td>Student Financial Support</td>
<td>55,509</td>
</tr>
<tr>
<td>Supplies, Services &amp; Other</td>
<td>52,598</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td><strong>$ 237,534</strong></td>
</tr>
<tr>
<td><strong>Non Operating Revenues</strong></td>
<td>$ 55,528</td>
</tr>
<tr>
<td><strong>Other Revenues</strong></td>
<td>$ 6,874</td>
</tr>
<tr>
<td><strong>Change in Net Position</strong></td>
<td><strong>$ 28,170</strong></td>
</tr>
<tr>
<td><strong>Net Position, Beginning</strong></td>
<td><strong>$ 293,044</strong></td>
</tr>
<tr>
<td><strong>Net Position, End</strong></td>
<td><strong>$ 321,214</strong></td>
</tr>
</tbody>
</table>
## FY 2018 Current Funds
### Projected vs Actual Revenues, Expenses & Change in Net Assets
(in thousands)

<table>
<thead>
<tr>
<th></th>
<th>Original * Projection</th>
<th>3rd Quarter** Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>$ 297,702</td>
<td>$ 301,587</td>
</tr>
<tr>
<td>Expenses</td>
<td>$(296,675)</td>
<td>$(299,148)</td>
</tr>
<tr>
<td>Change in Net Assets</td>
<td>$ 1,027</td>
<td>$ 2,439</td>
</tr>
</tbody>
</table>

* Original projection does not include estimates for investment income or non-cash expenses (pension or OPEB).

** Third quarter projection does not include estimates for non-cash expenses (pension and OPEB).

Note: Current Fund includes General, Designated, Auxiliary, Retirement and Insurance, and Expendable Restricted Funds.
Thank You
IV. CONSENT AGENDA

These are routine matters that generally do not require discussion or debate. Any Board member can remove any consent item from the agenda by request. They will be considered as one resolution.

A. Approval of Minutes  
B. Gifts  
C. Resignations, Retirements and Off Payroll  
D. Approval of External Auditor
IV-A. APPROVAL OF MINUTES

RECOMMENDATION: That the Board of Trustees approves the minutes of the formal special session of April 13, 2018 as distributed to the Board.
IV-B. GIFTS

Attached is a fiscal year to date comparative report of gifts to Michigan Technological University and the Michigan Tech Fund.

RECOMMENDATION: That the Board of Trustees acknowledges the gifts to Michigan Technological University.
## Michigan Technological University
### Michigan Tech Fund
#### Fundraising Productivity Report
July 1, 2017 through March 31, 2018
Compared to Prior Year

<table>
<thead>
<tr>
<th>Source</th>
<th>FY18 YTD Total</th>
<th>FY17 YTD Total</th>
<th>FY17 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals - Major Gifts (25K and up)</td>
<td>5,019,100</td>
<td>2,117,419</td>
<td>2,555,315</td>
</tr>
<tr>
<td>Realized Planned Gifts (Unanticipated)</td>
<td>1,104,129</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Individuals - non-Major Gifts</td>
<td>1,654,346</td>
<td>1,512,882</td>
<td>1,786,654</td>
</tr>
<tr>
<td>Full Value New Planned Gift Commitments</td>
<td>7,218,500</td>
<td>29,817,905</td>
<td>33,482,905</td>
</tr>
<tr>
<td>Annual Fund</td>
<td>1,160,000</td>
<td>1,158,510</td>
<td>1,491,595</td>
</tr>
<tr>
<td>Corporate Sponsored Research</td>
<td>9,810,924</td>
<td>460,485</td>
<td>3,025,560</td>
</tr>
<tr>
<td>Corporations</td>
<td>1,186,623</td>
<td>1,382,077</td>
<td>2,937,112</td>
</tr>
<tr>
<td>Foundations &amp; Other Organizations</td>
<td>163,712</td>
<td>242,577</td>
<td>288,574</td>
</tr>
<tr>
<td>Gifts-in-Kind</td>
<td>158,366</td>
<td>72,896</td>
<td>147,802</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>27,475,699</strong></td>
<td><strong>36,764,779</strong></td>
<td><strong>45,715,542</strong></td>
</tr>
</tbody>
</table>

-- Except for the Annual Fund, all totals include outright gifts and the full amount of new pledge commitments
-- Annual Fund includes cash from prior year pledges in addition to outright current year gifts and new pledge commitments due current year
-- An individual's gifts given through another source (i.e. family foundation or closely held business) are credited to the individual
IV-C. RESIGNATIONS, RETIREMENTS AND OFF PAYROLL

Attached is a report of resignations, retirements and off payroll which have been approved by the President and are included for his convenience in recommending acceptance by the Board.

RECOMMENDATION: That the Board of Trustees accepts the resignations, retirements and confirms the off payroll determinations.
# BOARD OF TRUSTEES OFF-PAYROLL REPORT

(February 4, 2018 – April 14, 2018)

## RETIRED

<table>
<thead>
<tr>
<th>Name</th>
<th>Class</th>
<th>Department</th>
<th>Title</th>
<th>Hire Date</th>
<th>Term Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutcher, Thomas</td>
<td>Staff</td>
<td>Facilities Management</td>
<td>Carpenter</td>
<td>10/08/1998</td>
<td>04/07/2018</td>
</tr>
<tr>
<td>Garnell, Louis</td>
<td>Staff</td>
<td>Facilities Management</td>
<td>Maintenance Mechanic</td>
<td>07/11/1983</td>
<td>03/23/2018</td>
</tr>
</tbody>
</table>

## OFF-PAYROLL

<table>
<thead>
<tr>
<th>Name</th>
<th>Class</th>
<th>Department</th>
<th>Title</th>
<th>Hire Date</th>
<th>Term Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gondek, Tonya</td>
<td>Staff</td>
<td>Facilities Management</td>
<td>Custodian</td>
<td>01/22/2001</td>
<td>04/03/2018</td>
</tr>
<tr>
<td>Groustra, Amber</td>
<td>Staff</td>
<td>IT Operations</td>
<td>IT Operations Manager</td>
<td>08/22/2016</td>
<td>04/02/2018</td>
</tr>
<tr>
<td>Kangas, Gary</td>
<td>Staff</td>
<td>Facilities Management</td>
<td>Electrician</td>
<td>01/16/2017</td>
<td>04/02/2018</td>
</tr>
<tr>
<td>Keller, Lauren</td>
<td>Staff</td>
<td>Enterprise Application Services</td>
<td>Application Programmer Analyst</td>
<td>05/13/2013</td>
<td>03/19/2018</td>
</tr>
<tr>
<td>Kohlheim, Brooklyn</td>
<td>Staff</td>
<td>General Athletics</td>
<td>Assistant Coach, Women's Basketball</td>
<td>09/11/2017</td>
<td>03/23/2018</td>
</tr>
<tr>
<td>Lampinen, Arthur</td>
<td>Staff</td>
<td>Wadsworth Hall Food Service</td>
<td>Baker</td>
<td>09/10/2013</td>
<td>02/22/2018</td>
</tr>
<tr>
<td>Martin, Juli</td>
<td>Staff</td>
<td>Visual &amp; Performing Arts</td>
<td>Administrative Aide 7</td>
<td>12/02/2013</td>
<td>02/21/2018</td>
</tr>
<tr>
<td>Nacker, Chelsea</td>
<td>Staff</td>
<td>Residential Dining</td>
<td>Food Service Helper</td>
<td>12/04/2017</td>
<td>02/11/2018</td>
</tr>
<tr>
<td>Rubinstein, Zachary</td>
<td>Staff</td>
<td>Center for Diversity &amp; Inclusion</td>
<td>Assistant Director</td>
<td>08/03/2015</td>
<td>02/23/2018</td>
</tr>
<tr>
<td>Turnquist, Leslie</td>
<td>Staff</td>
<td>Vice President for Research</td>
<td>Billing Coordinator</td>
<td>06/02/2014</td>
<td>02/16/2018</td>
</tr>
<tr>
<td>Yoon, Hyungchul</td>
<td>Faculty</td>
<td>Civil &amp; Environmental Engineering</td>
<td>Assistant Professor</td>
<td>08/15/2016</td>
<td>02/28/2018</td>
</tr>
</tbody>
</table>
IV-D. APPROVAL OF EXTERNAL AUDITOR

The University's external auditors (certified public accountants) perform interim audit work prior to the close of our June 30 fiscal year, therefore, it is desirable that they be appointed prior to the end of the fiscal year.

RECOMMENDATION: That the Board of Trustees authorizes the Treasurer to engage the certified public accounting firm Andrews Hooper Pavlik, PLC to conduct the following audits for the fiscal year ending June 30, 2018:

1. The annual examination of the University's Financial Statements and Supplemental Information (all funds).

2. The annual examination of federal awards and federal student financial assistance programs, including Pell Grants, Education Opportunity Grants, Perkins Loans, College Work Study Programs and Part B Loans.

3. The financial audit of the University's intercollegiate athletics programs, as mandated by the National Collegiate Athletics Association.

V. ACTION/DISCUSSION ITEMS

A. Employee Recognition
B. President Emeritus Rank
C. Emeritus Rank
D. Appointments with Tenure
E. Appointments, Not Involving Tenure and/or Promotion
F. Appointments, Involving Tenure and/or Promotion
G. Promotions
H. Proposal for PhD in Statistics
I. Proposal for Master of Science degree in Statistics
J. Proposal for Master of Science degree in Applied Statistics
K. FY2018-2019 General Fund Operating Budget
L. Approval of Strategic Plan
M. Election of Chair and Vice Chair
N. Revision to Board Policy 6.1. Faculty Definitions
O. Revision to Board Policy 6.4 Academic Tenure and Promotion
P. Board Policy 15.3 Research Data Principles
Q. Ordinance No. 4 – Tampering with Safety or Security Devices
V-A. EMPLOYEE RECOGNITION

For our employees that have worked for Michigan Tech for 35 or more years and
in recognition of their distinguished service and outstanding contributions to
Michigan Tech, the Board would like to honor them with a resolution of
appreciation.

RECOMMENDATION: That the Board of Trustees adopts the Resolution of
Appreciation for the following individuals:

1.) Louis Garnell – 35 years of service

2.) Sheila Laitinen – 38 years of service
V-B. PRESIDENT EMERITUS RANK

In recognition of Dr. Glenn Mroz’s distinguished service and outstanding contributions as the ninth President of Michigan Tech, the Board of Trustees would like to grant him the rank of President Emeritus.

RECOMMENDATION: That the Board of Trustees approves granting Dr. Glenn Mroz the rank of President Emeritus.
V-C. EMERITUS RANK

Recommendation for the granting of faculty emeritus status originates within the retiree’s academic department and proceeds through the respective college and school. Once approved, the recommendation is presented to the Provost, and if successful, to the President of the University for presentation to the Board of Trustees.

RECOMMENDATION: That the Board of Trustees approves the following emeritus appointments:

- Dr. Wayne Pennington, Dean and Professor Emeritus, College of Engineering
- Dr. Bruce Seely, Dean and Professor Emeritus, College of Sciences and Arts
- Dr. Terry Sharik, Dean and Professor Emeritus, School of Forest Resources and Environmental Science
- Dr. James Frendewey, Dean and Professor Emeritus, School of Technology
- Dr. Mark Johnson, Professor Emeritus, School of Technology
OFFICE MEMO

TO: Michigan Technological University Board of Trustees

FROM: Leonard Bohmann, Professor and Associate Dean, College of Engineering

DATE: April 12, 2018

SUBJECT: Recommendation for Dean Emeritus Status

The College of Engineering through a vote of the Engineering Council on April 12, 2018 request the Michigan Technological University Board of Trustees name Dr. Wayne Pennington as Dean Emeritus upon his retirement on June 30, 2018.

Dr. Wayne Pennington was appointed Interim Dean of the College of Engineering in 2013 and was selected for the permanent position in 2014. He continued his research activities as Dean, advising graduate students and publishing research results. As Dean he oversaw increases in undergraduate and graduate enrollment, degrees granted, and research expenditures. He hired four outstanding department chairs and oversaw the successful ABET reaccreditation efforts. He promoted Interdisciplinary cooperation and research within the college and across campus. As an example, his support helped lead to the successful commissioning of the FEI 200kV Titan Themis Scanning Transmission Electron Microscope. He is a strong supporter of distance education, leading an effort to introduce expanded online masters programs within the college.

Approved

Leonard Bohmann, Associate Dean
College of Engineering

Jacqueline Huntoon, Provost and
Vice President for Academic Affairs

Glen Mroz, President

4/13/18
4-13-18
4/16/18

Revised 9/21/16
Dr. Wayne D. Pennington joined the Department of Geological & Mining Engineering & Sciences in August 1994. He has served with distinction as a professor (1994 - present) and chair (2003 - 2013).

His expertise is geophysics, especially seismology. He also contributes significantly to the department's educational and research programs in geology and geological engineering. He is a renowned educator and mentor. His expertise in reflection seismology is highly regarded in research and industrial communities, and he is highly sought to share his expertise to technical experts in petroleum exploration. He was a Jefferson Science Fellow with the U.S. Agency for International Development (USAID) and the State Department in 2009-10.

Prior to joining Michigan Tech as a Professor of Geophysical Engineering, he was a research geophysicist for Marathon and conducted research in the development and use of geophysical observations for oil and gas production. He has also studied earthquakes around the world and his studies have included earthquakes associated with oil and gas production. He has served as President of the American Geosciences Institute and as the First Vice President of the Society of Exploration Geophysicists, among a number of other professional society responsibilities. He has served as editor for The Leading Edge and associate editor for Society of Petroleum Engineers and Geophysics, and has had many associate editor appointments. He has authored and co-authored dozens of refereed publications and one book.

He has served as the primary advisor for dozens of graduate students here, including PhD graduates in geological engineering and in geophysics. Even while serving as our college dean (including interim) he has advised a number of graduate students in their petroleum-exploration research.

Dr. Pennington led the GMES department through growth in both graduate and undergraduate enrollments for a decade before becoming Dean of the College of Engineering in 2013. He is retiring from the position as Dean and as Professor of Geophysical Engineering in July 2018.

The faculty of the Department of Geological Engineering & Sciences unanimously recommends awarding the rank of Professor Emeritus to Dr. Wayne D. Pennington pursuant to his retirement.
TO: Michigan Tech Board of Trustees  
DATE: 3/26/2018  
SUBJECT: Request for Professor and Dean Emeritus Status for Dr. Bruce Seely

The faculty of the Department of Social Sciences voted on March 21, 2018 to request that the Michigan Technological University Board of Trustees confer on Dr. Bruce Seely the status of Professor Emeritus upon his retirement on June 30, 2018.

Trained as a historian of technology, Dr. Seely joined the Department of Social Sciences in 1986. Over the next few years, he introduced a variety of courses in the history of science and technology that encouraged students from departments across campus to think more deeply about the social context in which the production of scientific and technological knowledge are embedded. Over the years he has also played a critical role in shifting the focus of the department from general education alone to a department in which faculty excel in both teaching and research. His own research, which has focused on the history of interactions and interrelationships between transportation policy and technology and on the forces that have shaped engineering education, has meshed well with the mission of a technological university.

A significant portion of contributions made by Dr. Seely, both in his professional society and at Michigan Tech, has been in guiding organizations through changes that he has facilitated. As Secretary (1990-1995) and later President (2013-2014) of the Society for the History of Technology, he played a significant role in helping the Society move from being a U.S.-focused organization centered on the East Coast to a truly international society. As Secretary, he championed the society’s first conference in Europe; as President, he laid the groundwork for the society’s first conference in Asia. At Michigan Tech, as the President of University Senate, he helped to move the university from quarters to semesters, which was a major cultural shift for the institution. He also served as the Program Director for Science and Technologies Studies at NSF (2000-2002), where he served as an advocate for increased funding for research into the societal aspects of science and technology. Then, as Chair of Department of Social Sciences (2002-2008), he oversaw the establishment of the department’s first PhD program, a development that benefited from external funding he secured to support the program’s first wave of graduate students. He also helped to develop a culture of interdisciplinary research and scholarship, serving, for example, as a co-PI on a grant that helped to establish Michigan Tech’s undergraduate minor in nanotechnology.
For these reasons and others, the faculty of the Department of Social Sciences believes that Dr. Seely has represented the department and university well and is deserving of the status of Professor Emeritus.

Hugh Gorman, Chair
Department of Social Sciences

3/26/2018

Since 2008, as Dean of the College of Sciences & Arts, Dr. Seely has guided the efforts of ten departments at Michigan Tech in the same thoughtful and effective manner he did as chair, society president, and university senate president. In recognition of his leadership and service, the Department Chairs in the College of Sciences & Arts, in a ballot facilitated by CSA Director of College Administration Karen Salo, also request (unanimously) that the Michigan Technological University Board of Trustees confer on Dr. Bruce Seely the status of Dean Emeritus upon his retirement on June 30, 2018.

Karen Salo
Director of CSA College Administration

3-26-2018

Jacqueline Huntoon, Provost and
Vice President for Academic Affairs

24 March 2018

Glenn Mroz, President

Date

Date

Date
OFFICE MEMO

TO: Michigan Technological University Board of Trustees
FROM: Andrew J. Storer, Associate Dean, School of Forest Resources and Environmental Science

SUBJECT: Recommendation for Emeritus Status

The faculty of the SFRES voted on April 17, 2018 to request that the Michigan Technological University Board of Trustees name Terry L. Sharik as Professor and Dean Emeritus upon his retirement on June 30, 2018.

Terry Sharik earned his PhD in Forest Botany from the University of Michigan in 1970. Dr. Sharik was on the faculty in the School of Forest Resources and Environmental Science at Michigan Tech from 1986 to 1993, and returned as Dean of the School in 2012. Since 2014 he has held the Robbins Chair in Sustainable Resources. In between his two periods at Michigan Tech, he was a professor of Forest Ecology at Utah State University, serving as a department head from 1993 to 2007. He has also held faculty appointments at Oberlin College, Virginia Polytechnic Institute and State University, and the University of Michigan Biological Station. Dr. Sharik has an extensive background in research and scholarship in the areas of forest ecology and natural resource education.

As Dean, Dr. Sharik has built partnerships across campus in support of an initiative in forest biomaterials. This initiative views forest biomaterials from a life cycle perspective that includes production of materials, utilization, marketing and recycling. This crosscutting initiative has led to the establishment of the Michigan Forest Biomaterials Institute, and places Michigan Tech at the forefront of forest product utilization in the State of Michigan. In addition, Dr. Sharik has focused significant energy on diversity related issues in the School, the University, and the natural resources community. He established an endowment in support of this work and continues to be at the forefront of scholarship in the area of diversity in natural resources at a national level. Dr. Sharik plans to continue his scholarship in these areas, and emeritus status will benefit him and the university.

Approved

\[\text{Date}\]

Department Chair/School Dean

\[\text{Date}\]

College Dean

\[\text{Date}\]

Provost and Vice President for Academic Affairs

\[\text{Date}\]

President

Revised 9/21/16
OFFICE MEMO

TO: Michigan Technological University Board of Trustees
FROM: School of Technology
DATE: April 16, 2018

SUBJECT: Recommendation for Emeritus Status – Dr. James O. Frendewey

The faculty of the School of Technology voted on April 16, 2018 to recommend that the Michigan Technological University Board of Trustees name James O. Frendewey as Dean and Professor Emeritus upon his retirement on June 30, 2018, after completing 30 years of service.

Jim Frendewey earned his MS and PhD degrees in Management Science from the University of Colorado, Boulder, in 1977 and 1983, respectively. He also earned a BS in Engineering Administration in 1974 and a BS in Mechanical Engineering in 1973, both from Michigan Tech. Prior to joining Michigan Tech’s faculty, Jim was an Assistant Professor at Virginia Tech University. His career at Michigan Tech began in 1989 as an Assistant Professor in the School of Business. He was promoted to Associate Professor in 1995, served as Associate Dean of the School of Business and Economics from 2002 to 2007 and as Interim Dean and then Dean of the School of Technology from 2008 to 2018.

As Dean of the School of Technology, Jim has been very successful in the continued strengthening and growth of existing programs (especially noteworthy is the successful accreditation and/or re-accreditation of all five of the School’s undergraduate programs) and new program development, such as leading the development and growth of two new graduate programs (MS in Medical Informatics and MS in Integrated Geospatial Technology), vastly improving the School’s media presence, securing new articulation agreements to increase enrollment, recruiting and strategic hiring, increasing faculty development opportunities, tenure and/or promotion of School faculty (10 promotion/tenure cases including 4 promotions to Professor), promoting partnership with industry (for example, Jim’s efforts resulted in a generous $255,000 gift from Nucor Corporation), improving and updating lab facilities, and effectively managing the School’s resources in accomplishing the above. He has also been involved in numerous interdisciplinary and service activities, often in a leadership role (i.e. ACIA, BLG, Enterprise Governing Board). Jim has been active in both national and international professional organizations with emphasis on advancing technical education such as the American Society of Engineering Education, Engineering Technology Division of ASEE, Engineering Technology Council of SEE, and Engineering Technology Leaders Institute.

Jim has contributed greatly to the alignment of the School with the University’s mission, and has been an outstanding Dean and member of the Michigan Tech community. Jim Frendewey is certainly deserving of Emeritus status.

Approved:

[Signatures]

Department Chair/School Dean

College Dean

Provost and Vice President for Academic Affairs

President

Date

Date

Date

Date

Revised 9/21/16
Michigan Tech

OFFICE MEMO

TO: Michigan Technological University Board of Trustees
FROM: James O. Frendeway, Dean, School of Technology
DATE: April 17, 2018
SUBJECT: Recommendation for Emeritus Status

The faculty of the School of Technology request that the Michigan Technological University Board of Trustees name Dr. Mark Johnson as Professor Emeritus upon his retirement on May 5, 2018.

Dr. Johnson joined the School of Technology in January of 2002 as an Assistant Professor of Mechanical Engineering Technology and was promoted to Associate Professor with tenure in 2007. Prior to joining Michigan Tech, Dr. Johnson served in the military as an Air Force pilot and spent several years in industry working for the Ford Motor Company.

Mark is an excellent teacher and has maintained outstanding teaching evaluations throughout his time at the university, teaching a number of courses in the Mechanical Engineering Department as well as courses in the School of Technology.

Dr. Johnson was an active contributor to several long-term research projects related to automotive drive train development and improvement and collaborated with several colleagues in the College of Engineering.

Interaction with students was important to Mark and he served as advisor for a number of student groups and was an active member of the Board of Governors for the Phi Kappa Tau fraternity.

Approved

[Signature]
Department Chair/School Dean

[Signature]
College Dean

[Signature]  April 17, 2018
Provost and Vice President for Academic Affairs

[Signature]
President

Revised 9/21/16
V-D. APPOINTMENT WITH TENURE

Included herein is a request for the appointments of Dr. Janet Callahan and Dr. David Hemmer, whom, with their initial appointment, will receive tenure.

**Dr. Janet Callahan** is being recommended for appointment as Professor with tenure in the Department of Materials Science and Engineering effective July 1, 2018. The Department and College of Engineering Promotion and Tenure Committees, the Dean, the Provost, and the President have endorsed the recommendation for tenure. Dr. Callahan is currently Chair, Professor, and co-founder of the Micron School of Materials Science and Engineering at Boise State University. She will assume the duties of Dean of the College of Engineering in July. Dr. Callahan earned her PhD from the University of Connecticut at Storrs in 1990.

**Dr. David Hemmer** is being recommended for appointment as Professor with tenure in the Department of Mathematical Sciences effective July 1, 2018. The Department and College of Sciences and Arts Promotion and Tenure Committees, the Dean, the Provost, and the President have endorsed the recommendation for tenure. Dr. Hemmer is currently a Professor of Mathematics at the University at Buffalo, SUNY, and serves as the chair of the Department of Mathematics. He will assume the duties of Dean of the College of Sciences and Arts in July. Dr. Hemmer earned his PhD from the University of Chicago in 2001.

**RECOMMENDATION:** That the Board of Trustees approves the appointments of Dr. Janet Callahan as Professor with tenure in the Department of Materials Science and Engineering and Dr. David Hemmer as Professor with tenure in the Department of Mathematical Sciences, both effective July 1, 2018.
PROFESSOR JANET CALLAHAN

Information Sheet for the Board of Trustees
Michigan Technological University

current personal website: http://coen.boisestate.edu/janetcallahan/

Dr. Janet Callahan has accepted the position of dean for the College of Engineering at Michigan Technological University, effective July 1, 2018. She is presently Chair, Professor, and co-founder of the Micron School of Materials Science and Engineering at Boise State University. Prior to her current appointment, she served as Associate Chair to the department, and as Associate Dean of Engineering for Academics. Dr. Callahan is being considered for hire with tenure in the Department of Materials Science and Engineering in the College of Engineering at Michigan Tech.

Academic Degrees

<table>
<thead>
<tr>
<th>Degree</th>
<th>Year</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Materials Science &amp; Engineering</td>
<td>1990</td>
<td>University of Connecticut at Storrs, Storrs, CT</td>
</tr>
<tr>
<td>M.S. Metallurgy</td>
<td>1986</td>
<td>University of Connecticut at Storrs, Storrs, CT</td>
</tr>
<tr>
<td>B.S. Chemical Engineering</td>
<td>1983</td>
<td>University of Connecticut at Storrs, Storrs, CT</td>
</tr>
</tbody>
</table>

Professional Positions

<table>
<thead>
<tr>
<th>Year</th>
<th>Position and Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 – present</td>
<td>Chair and Professor, Micron School of Materials Science &amp; Engineering, Boise State University, Boise, ID</td>
</tr>
<tr>
<td>2015 – 2016</td>
<td>Associate Chair, Micron School of Materials Science and Engineering, Boise State University, Boise, ID</td>
</tr>
<tr>
<td>2010 – 2012</td>
<td>Faculty in Residence, Engineering Residential College, Boise State University, Boise, ID</td>
</tr>
<tr>
<td>2005 – 2016</td>
<td>Co-Founding Professor of Materials Science &amp; Engineering, Boise State Univ., Boise, ID Founding Associate Dean and Chair of the ENGR Department, College of Engineering, Boise State University, Boise, ID</td>
</tr>
<tr>
<td>1992 – 2004</td>
<td>Assistant &amp; Associate Professor (tenured in 1999), Materials Science &amp; Engineering, Georgia Institute of Technology, Atlanta, GA</td>
</tr>
<tr>
<td>1990 – 1992</td>
<td>Visiting Scientist, Commonwealth Scientific &amp; Industrial Research Organization, Division of Materials Science &amp; Technology (CSIRO), Melbourne, Australia</td>
</tr>
<tr>
<td>1984 – 1990</td>
<td>Research Associate, University of Connecticut, Storrs, CT</td>
</tr>
</tbody>
</table>

Summary of Accomplishments

Teaching: Dr. Callahan has strong record of teaching in terms of versatility, effectiveness, innovation, and best practices. Despite her administrative appointments at Boise State, she has taught at least one class each semester covering a diversity of topics including biomaterials, engineering statics, introduction to materials science and engineering, mechanical behavior of materials, introduction to engineering laboratory, and capstone senior project. Student teaching evaluations provided by Dr. Callahan for courses taught over the last six years suggest that she is effective and valued in the classroom by her students. At Georgia Tech, she taught similar courses, plus additional offerings in advanced electron...
microscopy (graduate level) and environmental degradation of materials. Significantly, approximately half of her scholarly publications have served the engineering education area, and demonstrate considerable dedication and contributions to STEM educational pedagogy, innovative classroom strategies, assessment and continuous improvement, freshmen retention, and sharing of best practices. Dr. Callahan has additionally served as an ABET evaluator for several years, including as a team leader, demonstrating strong commitment to curricular standards, student learning, assessment, and professional service.

**Research/Scholarly Activity:** Dr. Callahan has an established international and signature reputation as a researcher in the area of advanced materials processing; notably chemical vapor deposition methodologies as applied to surface modification, creating engineered surface functionalities, and chemical synthesis. Her work in these areas has been applied towards the understanding of high temperature oxidation of metals and ceramics, and for the development of biomaterials and medical devices. As a component of her analyses during the course of this work, she utilized and interpreted a variety of advanced materials characterization methodologies including scanning transmission electron microscopy (S-TEM) and numerous material property measurement methodologies. She was a recipient of an NSF Career Grant awarded during the early years of her appointment as a faculty member at Georgia Tech, and with this funding established a new method for creating embedded metal nanoparticles in dielectric materials using ion implantation of reactive elements. She has received additional research funding from NSF, DOE, DoD, and industry. Her research has led to two U.S. Patents, and in 1999, she co-founded a biotechnology medical start-up company that commercialized a brachytherapy device based on radioactive materials coating methods. More recently and concurrent with her administrative responsibilities at Boise State, her research has shifted towards engineering education and STEM learning strategies, as noted above. Her scholarly contributions include over 105 journal articles, 13 books, book chapters, and symposia, and over 100 keynote, invited, and contributed presentations. She received the 2015 ASEE Mathematics Division Best Paper Award for her implementation and analysis of techniques to improve engineering student learning in mathematics. In 2004, she was appointed to the University of Connecticut’s Academy of Distinguished Engineers for her cumulative career contributions to engineering, science, and education. In 2017, she was recognized in *Idaho Business Review*’s Top 50 Women of the Year.

**Service:** Dr. Callahan has a particularly impressive record of department-, college-, and university-level service through her involvement in numerous curricular, fund raising and development, outreach, advising, and continuous improvement activities at Boise State. In particular, Professor Callahan was part of the team that secured a $40M gift to Boise State from Micron Technologies Corporation that established the endowment underpinning the Micron School of MSE, and for founding the Boise Center for Materials Characterization and Lowery Idaho Microfabrication Laboratory. Her fundraising efforts attracted more than $7M dollars in additional funding for other program enhancements, instrumentation, and teaching activities. As Associate Engineering Dean for Academics, engineering enrollment at Boise State over doubled, two Ph.D. programs were launched, and the faculty count increased over 90%. Although she has been active in research throughout her career, Professor Callahan is a particularly strong advocate for the insistence and development of quality education at all levels, from elementary school through advanced graduate programs. She has been a strong advocate and mentor for under-represented groups in engineering through outreach, and is an active community volunteer in activities that serve to advance these goals.

Professor Callahan also provides service to the engineering discipline through professional activities outside university. She is an active and highly visible member of ASEE, TMS, ASM, ACerS, AIChE, SWE and others through the organization of annual symposia, chairing and co-chairing committees and sub-committees, and conference presentations. As mentioned above, she has served as an ABET evaluator to programs in ceramics, chemical engineering, and materials science and engineering; as an ABET team leader, and as a member of ABET’s Engineering Accreditation Commission.
Janet Callahan, PhD, Chair and Professor
Micron School of Materials Science and Engineering
Boise State University, Boise ID 83725-2075
JanetCallahan@BoiseState.edu
Phone: 208 426 5983; cell 208 608 4424
Personal Website: https://coen.boisestate.edu/janetcallahan/
Department Website: http://coen.boisestate.edu/mse/
https://www.linkedin.com/in/janet-callahan

Citizenship: United States

Administrative Experience: Boise State University, Boise, Idaho, United States

Chair, Micron School of Materials Science and Engineering 2016-
Primary Responsibilities

- Manage an operating budget of $4.2 million in appropriated budget, exclusive of grant revenue; oversee research enterprise (research expenditures ~$3M, 2015-16).
- Oversee a total of 17 t-track program faculty (two with joint appointments in science), five research professors, six administrative staff (3 professional, 3 classified), eight technical professional staff.
- Academic oversight for B.S., M.S., M.Eng. and Ph.D. programs; ABET accreditation

Accomplishments:

- 2016-17 Strategic Planning: Vision Statement (below); strategies, goals & tasks

Located in the beautiful Pacific Northwest, we are a new model for a School of Materials Science and Engineering. Based on a strong foundation of interdisciplinarity, radical collaboration, industrial support, and dynamic balance, our Vision is

To be a leader of inclusive excellence, empowering world-class students to solve global challenges of enduring significance through materials innovation.

- 2016-16 ABET cycle: two strengths, no shortcomings.
- 2016-17: Chair, Faculty Search Committee; hired one full professor (Scott Phillips)
- One additional CAREER awardee in 2017 (bringing the total to 5 in our School).
- Developing T&P guidelines for our School (Fall, 2017)
- Updated governance plan of interdisciplinary graduate masters and doctoral programs (originally crafted in 2012 with the launch of the PhD program).
**Associate Chair**, Materials Science and Engineering 2015-2016

**Founding Associate Dean**, College of Engineering 2005-2016

### Primary Responsibilities

- Assisted in managing an operating budget of ~$11.5 million in appropriated budget, exclusive of grant revenue; directly responsible for operating budget of $930,000 in appropriated budget and grant revenue.
- Chair of ENGR department (2005-2014), Chair, Accreditation Committee (2005-2016), Chair, Scholarship Committee (2005-2016).
- Head of Academic Affairs; student body fall 2015 headcount: 2987. At that time: three Ph.D. programs, six M.S. programs, five M. Engr. Programs, six B.S. programs, seven departments.
- Administrative Head of Advising Center (four full-time and six part-time employees).
- Supervised 10 full-time faculty and staff as direct reports and approximately ten adjunct faculty.

### Select Accomplishments

- Led college through ABET CAC and EAC accreditation visits conducted in 2006 (Computer Science and the newly established Materials Science and Engineering program), ABET program visits conducted in 2010 and 2016 (Civil, Electrical, Mechanical and Materials Science and Engineering programs), Computer Science in 2012/16, ACCE program visits to Construction Management in 2006 and 2012. Author of MSE self-study, 2016; author of all college sections for self-studies.
- As Chair of ENGR department (2005-2016), secured funding for the first appropriated faculty members. ENGR is responsible for teaching engineering courses taken by multiple majors (~15 courses, more than 45 sections/year). The department employs approximately ten students as teaching assistants in a self-funded model using course fees as well as about 5 adjunct faculty.
- Facilitated the establishment of the Boise Center for Materials Characterization in 2006, by procuring its anchor instrument through a National Science Foundation MRI grant for nearly $700,000 (2005). With this grant came a gift I procured of $125,000 from the Micron Foundation and an institutional commitment for the facility renovation and the first five years of a service contract; total funds: $1M. This allowed the BSCMC to get off the ground – it now has significantly expanded with regard to instrumentation (EPMA, FEG-SEM, XRD, etc.). This center is the only center in the college to cover its costs with user fees.
- Student success initiatives 2010-2015. Across the university, I led a focused, grant-funded effort to recognize the challenges facing students in science, technology, engineering and mathematics (STEM). The resulting unified STEM voice enhanced all its constituent departments. Across this time-frame, STEM enrollment at Boise State University grew by 55% and STEM bachelor’s degrees increased by 80%.
- Faculty in Residence for the Engineering Residential College, a Living Learning Community, 2010-2012. I lived on campus with my family and dog for two years, overlooking the Boise River on the third floor of Taylor Hall with a co-ed floor of first-year engineering students. Cited for Outstanding Leadership Service: National Residence Hall
Honorary, March, 2012: For outstanding dedication to making campus housing a place for students’ education.

- **Head of Scholarship Committee:** Secured and managed $3.3M in scholarship funds from the National Science Foundation as PI ($2.7M) or co-PI ($600K). Worked with the development office to ensure compliance with donors and the University Foundation and to foster ongoing relationships.

- Planned, designed, created and identified staff for a college-wide Advising and Outreach Center, opened in 2011, to welcome new students to the college, oversee summer orientation, and serve as an entry point for visitors to the college of engineering.

- Established Idaho Gamma Chapter of Tau Beta Pi (installed March, 2010); founding member of the Treasure Valley alumni chapter est. 2013. I continue to serve as one of four chapter advisors.

- Committed to outreach. Programs in engineering bring in over 10,000 young people to campus each year to explore technical careers. Established and procured funding for annual outreach events: e-Day and e-Camp, one day and three day/two night experiences for underrepresented students. Partnered with the Discovery Center of Idaho to integrate university students into informal science programs, share speakers and promote service learning projects (including an accessible bridge over a tributary of the Boise River that connects the park system with the DCI). Fostered the continuing success of e-Girls Camp for 10-11th grade girls.

- Founded the College Safety Committee in 2006 that led to significantly increased safety in the college and in 2010, and permanent funding for a staff member to proactively coordinate safety.

- Enrollment in the College of Engineering doubled over the first ten years while I was Associate Dean, from 1496 in 2005 to 2987 in 2015 (fall 10th day). This accounts for more than half of the student body growth at Boise State University over the same time frame (enrollment ~20,000).

- Enrollment of women in engineering and computer science increased by 5% since 2005 when I entered a leadership role in the college. In fall, 2017, we attained 17%.

- **Procured $1M in external funds for student success** through a National Science Foundation Science Talent Expansion Program, 2010-2015 (PI: Callahan, written in 2008, funded 1/2010-12/2015). Funded during a period of very rapid STEM enrollment growth and budget cutbacks, we none-the-less achieved the following grant objectives:
  - STEM Bachelors graduates rose from 228 (2009-10) to 441 students (2014-15), an increase of 93%, far exceeding the grant’s goal of a 22% increase.
  - STEM enrollment rose from 2028 (fall, 2009) to 2865 students (fall, 2015), an increase of 41%.
  - Underrepresented minority students enrolled in engineering and computer science increased from 10.6% in fall 2009 to 13.5% in fall 2015, an increase of 27%.
  - Women enrolled in engineering and computer science increased from 12.8% in fall 2008 to 15.6% in fall 2015, exceeding grant goal of attaining 15%. In fall, 2017, we attained 17%.
  - First-time, full time STEM student retention increased by 9% (fall, 2010/fall 2015).
  - Published 14 papers, 5 posters, gave three workshops/panels and two webinars.

https://stem.boisestate.edu/idaho-step/publications/
Chair, College of Engineering Tenure and Promotion Committee 2004-2005. Led successful effort to revise college level policy.

Established college-level Senior Design Showcase, an event held annually, highlighting senior design projects and their industry sponsors with poster presentations. This event is scheduled in such a manner as to engage the College of Engineering Advisory Council, at the close of their spring meeting, and to also engage program advisory committees.

Participated annually, as Chair of ENGR, in the college’s open Annual Planning and Budget process that ties together initiatives and strategic planning. The decisions to add full-time instructional faculty to ENGR were prioritized through these planning sessions as part of the college’s strategy to manage student growth.

Participated in long-term strategic planning, focusing on mission and goals. Latest round of strategic planning led to updated college and department level mission statements and updated program educational objectives (completed, 2015).


Assisted in the development, implementation and management of the College of Engineering Awards, est. 2005, including Professor of the Year, Staff Award for Excellence, Student Award for Excellence and Student Choice Award for Excellence.

Professional Societies & Service:

Professional Membership Administrative Experience and Service

  o Lead or Co-Organizer for High Temperature Coatings I-IV Symposia
  o Co-Organizer for Coatings 2005 Symposium at MS&T05;
  o Education Committee; Accreditation Committee; Corrosion & Environmental Effects Committee, Surface Engineering Committee.
  o ABET program evaluator since 2006. Worked with ACerS/NICE to create revised program criteria in common to both lead societies (approved by ABET Board in July, 2013).

ASM, International: Member since 1998;
  o Women in Materials Engineering Committee 2017-18, CLD (Career and Leadership Development subcommittee),
  o Bronze Medal Selection Committee, 2017-2020

ACerS: Member since 2010.
  o Book Publication subcommittee,
  o Education Integration Committee.
  o ABET Commissioner (2015-present);
  o ABET program evaluator;
Education Integration Committee; Engineering Ceramics Division Executive Committee; Co-Chair of the Education and Professional Development Council (EPDC), 2017; Chair of Accreditation sub-committee; Co-Organizer for "Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way)" held at MS&T 2011, 2012, 2013, 2014, 2015, 2016, 2017; Worked with TMS as joint society to create revised program criteria in common to both lead societies (approved by ABET Board in July, 2013).

- AIChe: Elected a member in 2007. American Institute of Chemical Engineers; Member, Education and Accreditation Committee; EAC ABET program evaluator (2007-present); ETAC certified PEV for ABET (2016-present).
- ASEE: Member since 2002. American Society for Engineering Education:
  - (2) EDC Undergraduate Experience Committee (2006-2017);
  - (4) Freshmen Program Division, Author, Member and Paper Reviewer (2015, 2017);
  - (5) Materials Science Division, Author, Member, Nominator of 2017 recipient for the Michael Ashby Outstanding Materials Educator Award (awarded to Dean Amy J. Moll).
  - (6) Graduate Studies Division, Author, Reviewer, Member (2015-present)
  - (7) Zone IV, Pacific Northwest Section, Member conference planning committee (2016-present). Keynote talk, Seattle, 2017: “Change is Coming…Change with Inclusive Excellence.”
  - (8) Diversity Committee: ASEE Committee and Review work: Member of the ASEE Diversity Committee (2016-present), Delegate for the Mathematics Division, Chair of the Best Diversity Paper Action Subcommittee (2017-present), member of the Communication Action Subcommittee (2016-present).

- SWE: Society for Women Engineers;
  - WIA committee (2015-present).
- WEPAN: Women in Engineering Pro-Active Network. Member, institutional representative.
- UMC: University Materials Council (2016-present) – this is a committee of all the sitting Chairs/heads of materials programs across the world. I serve on the UMC nominating committee for EXCO.
Work Experience:

- 2016-present **Chair**, Micron School of Materials Science & Engineering, Boise State University
- 2005-2016 **Founding Associate Dean**, College of Engineering, Boise State University
- 2004-present **Professor** and one of four founding faculty members, Materials Science and Engineering, Boise State University (now the Micron School of Materials Science and Engineering)
- 2010-2012 **Faculty in Residence**, Engineering Residential College, Boise State University
- 1992-2004 **Assistant and Associate Professor**, Materials Science and Engineering, Georgia Institute of Technology (on leave of absence 1999-2001)
- 1990-92 **Visiting Scientist**, Commonwealth Scientific and Industrial Research Organization, Division of Materials Science and Technology
- 1984-90 **Research Associate**, University of Connecticut, Storrs, CT

Education:

- **Ph.D. 1990 Materials Science**, University of Connecticut at Storrs
- **M.S. 1986 Metallurgy**, University of Connecticut at Storrs
- **B.S. 1983 Chemical Engineering**, University of Connecticut at Storrs, Cum Laude

Honors of Distinction:

- **Faculty in Residence, Engineering Residential College**, 2010-2012
- **University of Connecticut Academy of Distinguished Engineers**, 2004
- **National Science Foundation** Career Grant Recipient 1996-2003
- **National Science Foundation Postdoctoral Fellow**, Program for Long and Medium Term Research at Foreign Centers of Excellence, 1990-1991
- **Tau Beta Pi**, Connecticut Beta

Awards/Honors:

- **2017** Mathematics Division nominee for Best Diversity Paper of the 2017 ASEE National Conference; selected as a finalist (one of five, across all divisions) for the Diversity Division
- **2017** Idaho Business Review Top Women of the Year
- **2016 Faculty Coach for a Game Honoree** (Sept. 10, BSU v. WSU [BSU won])
- **2016 Top Ten Scholar Honored Faculty**, Ms. Lacie Rasley. Top Ten is Boise State University’s highest honor for students. The student’s honored faculty plays a critical role in helping students achieve their potential.
• **2015 ASEE Mathematics Division Best Paper Award:** “Coherent Calculus Design: Creating Faculty Buy-in for Student Success,” with Doug Bullock and Susan Shadle.

• **Outstanding Leadership Service: National Residence Hall Honorary, March, 2012.** For outstanding dedication to making campus housing a place for students’ education.

• **The 2010 Gary Leach Award, AIChE,** as part of an award to the 2009-2010 Accreditation Committee, “for its thorough review, recommendations and collaborative work to require awareness of safety in the undergraduate curricula by proposing and implementing revised academic program evaluation criteria.”

• **Student Choice Award for Excellence, 2010 College of Engineering, Boise State University**

• **Idaho Women Making History, 2009**

• **Provost’s Excellence in Advising Award, Boise State University, 2006.**

• **The Wallace H. Coulter Award** for Innovation and Entrepreneurship, Finalist, Georgia Institute of Technology, 1999.

• **Georgia Tech Foundation Teaching Fellow 1993-1994.**

**Research Interests:** Medical devices; brachytherapy and related materials synthesis; biomaterials; oxidation of high temperature and refractory alloys; ion beam synthesis of nanomaterials; thermal barrier coatings; chemical vapor deposition of oxides. Engineering education; faculty development; conflict resolution; freshmen retention; continuous improvement; STEM retention; K-12 partnerships.

**Other Languages:** French (intermediate), Italian (low). I have a good accent in both!

**Board Experience:** Girl Scouts of Silver Sage, 1st Vice-Chair 2016-18, Director at Large, 2015-16. The GSSC sets national records for girl and adult engagement, fundraising and more. Founding Director of the STEM Task Force (est. 2016).

**Volunteer Activities:** Girl Scouts: (1) Troop Leader (1996-2004, Decatur GA), (2) Board of Directors, Silver Sage Council (2015-present); Idaho Botanical Gardens (built an accessible entrance, working with the Engineering Residential College and the Construction Management Club), Discovery Center of Idaho (built a bridge, working with the Engineering Residential College and the Construction Management Club), Galileo STEM Academy (2016-17, two first LEGO League Teams), Idaho Parks & Recreation (annually since 2004, with Idaho Gamma), Rake Boise (annually since 2006, Idaho Gamma), Vice President Boise Alumni Chapter Tau Beta Pi.

**Review Panels, Journal Reviews [2002-present]:**

Met. Trans. Key Reader and Reviewer; J. Electrochem. Soc.; Mat. Sci and Eng. A; Acta Mat.; Corrosion Science; Environmental Protection Agency; National Science Foundation (CAREER, STEP, IUSE, S-STEM, Graduate Research Fellowships, NRT and more); Nuclear Instruments and Methods B; SMART Scholarship for Service Program, Journal of Engineering Education, MSEIP.

**Service to the Profession through Accreditation:**
Commissioner to the Engineering Accreditation Commission 2015-present (NICE/ACerS). Team chair for three visits since 2015.
Alternate Commissioner to the Engineering Accreditation Commission 2010-2015 for NICE/ACerS;
ABET program reviewer for Materials Science and Engineering, Ceramic Engineering and Chemical Engineering programs through TMS, ACerS and AIChE societies;
ABET Program Evaluator to 14 programs since 2005;

Selected Boise State University and College of Engineering Experiences and Accomplishments:

- Member, Intercollegiate Athletics Advisory Committee, 2017-18
- Member, College of Engineering dean search, 2016-17
- Member, University-wide Promotion and Tenure Guidelines Committee, 2014-2015
- Chair, Graduate Committee, College of Engineering, 2005-2007; Member, Graduate Committee, 2007-2012
- Undergraduate research supervisor for two students who received a NSF Graduate Research Fellowship (Valek, 2000, Dunham, 2008)
- Associate Dean Representative to Advising Council (2005-2013)
- Director of Summer Orientation for College of Engineering (2005-2013)
- Notice of Intent for Biomedical Engineering minor (now on the books), M.S. Degree (pending approval).
- Biomaterials Course Coordinator and Instructor, 2005-2008 (grad and undergrad levels); Biomaterials in spring, 2008 had an enrollment of 45 students; this course is now offered annually by others and led to a thriving research faculty group
- Nominator of Founders Leadership Society Recipients, 2004-2013
- Nominator of Top Ten Scholars for College of Engineering 2006-2016
- Member of Sounding Board for the Engineering Education Research to Practice Grant (National Science Foundation E2R2P) 2010-2012
- Member, Faculty Professional Standards Committee 2014-2017
- Member, University Academic Appeals Committee 2008-11 and 2014-2016
- Thesis Committee Member: Michelle Gerritsen (Committee Chair), Stephen Thomas (Committee co-Chair)
- Dissertation Committee Member: Armen Kvryan,
- External Evaluator: Gateway Scholarships in Biological Sciences, $1 million, Boise State University 2017-2022.

Significant External Funding Procured at Boise State University (2005-present)

(As PI: $6,348,000; as co-PI: $967,000)

- Principal Investigator for MRI: Acquisition of a Transmission Electron Microscope for National Science Foundation Multidisciplinary Research and Education Award: $692K from NSF with match of $125K from The Micron Technology Foundation for an analytical
transmission electron microscope (2005). This led to the development of the Boise Center for Materials Characterization, in which it is the showcase instrument. Total external and internal funding, ~$1 million. (This award was managed and administered by co-PI Mullner)

- Principal Investigator for the Idaho SySTEMic Solution through the United States Department of Education; ($780K in total; 2008-2011; co-PI Nadelson). This grant enhanced elementary teacher preparation in STEM and engineering awareness using BrickLab™ manipulatives. Teacher training and mentoring were used to help implement inquiry based learning in 118 classrooms in the Meridian School district, affecting more than 2700 children over the project’s span. Seven papers were produced during this work. See the following URL for the SySTEMic Solution website that contains teacher generated lesson plans and videos of classroom lessons: https://sites.google.com/a/boisestate.edu/idaho-systemic-lesson-plans/home
- Principal Investigator for National Science Foundation S-STEM: The Idaho Engineering Scholarship Program – Expanded Opportunities: $593K 2008-2012
- National Science Foundation Idaho Research Infrastructure Improvement (9/1/08-8/31/13) $248,395. Established and funded e-Day and e-Camp, STEM outreach programs.
- Co-PI for 2009 HP Innovations in Education grant, $267K (PI Guarino).
- Principal Investigator for The Idaho Science Talent Expansion Program ($1M), 2010-2015, National Science Foundation STEP grant.
- Principal Investigator for National Science Foundation Grant: S-STEM: Idaho Scholarships for Transfer Students, $600,000 (2011-2015).
- Principal Investigator: NRC - Materials for Nuclear Energy Systems Faculty Development Program: Claire Xiong is my mentee, $430,000 (8/1/2014-7/31/2018).
- Principal Investigator: National Science Foundation S-STEM : Collaborative Research: The Redshirt in Engineering Consortium, $5M, with $907,000 awarded to Boise State University Scholarships for computer science & engineering (9/1/2016-8/31/21)

**Major Gifts**

In the role of Associate Dean and founding faculty member/Associate Chair and now as Chair of the Micron School of Materials Science and Engineering, I have helped secure or secured the following major gifts.

- $750,000 (2017) gift from Harriette and Tyler Lowrey. Half in support of the Lowrey Idaho Microfabrication Laboratory (2017-2022), and half as an endowment for scholarships. Harriette was our first graduate in electrical engineering at Boise State University (~1998)
and Tyler, a CEO at Micron, was instrumental in establishing the College of Engineering. Secured gift with Dean Amy Moll.

- $25 million gift from The Micron Foundation (2016); funds designated to establish the School and for the building to house the school (completion date est. March, 2020). Lead on this gift was Amy Moll, former Dean of Engineering; and Peter Mullner, former Chair of MSE. My role was supportive as Associate Dean. Now as Chair, I work closely with the architects and facilities committees as the building is designed and the remaining financing secured. Project total: $65 million, 92,000 sf. This gift triggered our distinguished name: Micron School of Materials Science and Engineering.

- $13 million gift from The Micron Foundation to establish the Ph.D. in Materials Science and Engineering (2011). This was part of The Campaign for Boise State University: Destination Distinction, Boise State University’s first capital campaign (goal of $175M, completed in 2011 with this commitment). The principal on this gift was Darryl Butt, Chair of the MSE program at the time; now Dean at U-Utah; my role was supportive.

- $125,000 – 2005, The Micron Foundation. Instrumentation support award, to complement the National Science Foundation MRI grant awarded in 2005 (Callahan).

**Funded Research Proposals at Georgia Tech (~1.5M in funding)**


"Coatings for High Temperature Alloys," National Science Foundation CAREER Award, 1996, $442,069 (PI).


"Yttrium Ion Implantation of Sapphire," Molecular Design Institute, Georgia Institute of Technology, Office of Naval Research funds, 1995-7: $21,450.

"The Effects of Zr, Mg and Y Ion Implantation on Si and Alumina Substrate-Superconductor Interfaces," The Engineering Foundation Research Initiation Awards, 1993; $23,000

Student Mentorship at Georgia Tech:

Major advisor, PhD: Dr. Eden Hunt, Dr. David Stollberg, Dr. Tao (Janet) Chen

Major advisor, Masters of Science: Ms. Amanda Alexiou, Mr. Giulio Grandinetti, Ms. Eden Hunt, Ms. Edu Enin-Okut, Ms. Michelle Hendrick.

Coursework Taught

Georgia Tech (1992-2004):
- Advanced Electron Microscopy (600 level graduate class)
- Environmental Degradation (400 level technical elective)
- Statics (200 level engineering class, taught annually)
- Introduction to Materials Science & Engineering (200 level engineering class, taught annually)

Boise State University (2004-present):
- MSE 477/ME 477 Biomaterials (first and second time ever offered at BSU, 2005 & 2006); this course is now regularly offered and widely subscribed to.
- MSE 488 Environmental Degradation of Materials (first time ever offered at BSU, ~2005/6)
- MSE 312 Mechanical Behavior of Materials (2016, 2017); this course is now regularly offered and widely subscribed to.
- ENGR 245 Introduction to Materials Science and Engineering (almost annually since 2004)
- ENGR 245L Laboratory for the MSE introductory course
- ENGR 120 Introduction to Engineering (laboratory)
- MSE 480/482 Senior Project I & II (2016-present)

Publications and Patents Awarded (includes ~30 peer-reviewed ASEE conference proceedings)


Books, Book Chapters and Symposia Organized


8. Infusing Real World Experiences into Engineering Education (Nov., 2012), National Academy of Engineering exemplar, Boise State University chapter 28: FUSE (First
Undergraduate Service Learning Experience): Real-World Adaptive Engineering Design. One of 29 exemplar engineering programs across the nation that effectively incorporate experiences into their curriculum, highlighting best practices. [https://www.nae.edu/65099.aspx](https://www.nae.edu/65099.aspx)

7. Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way) – Elizabeth Judson Memorial Symposium MS&T 2012. Organizers: Jeffrey Fergus, Gillian Bond, Chester Van Tyne; Ronald Gibala; Thomas Bieler; Janet Callahan; William Hammetter; Steven Yalisove. 10/7-10/11/2012, Pittsburgh, PA.

6. Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), MS&T 2011. Organizers: Jeffrey Fergus (Auburn University), Gillian Bond (New Mexico Tech), Janet Callahan (Boise State University), Ron Gibala (University of Michigan), and William Hammetter (Sandia National Lab).


**PRESENTATIONS**

Conference Presentations without Proceedings, Other.


42. D. Llewellyn & J. Callahan, The Impact of Volunteering at a Girls Outreach Activity on Community Formation, paper presentation to the Pacific Northwest Region of the American Society for Engineering Education Annual Conference & Expo, April, 2016 (published abstract).


37. Panel Organizer and Moderator: Continuous Improvement of Student Learning; part of Materials Science & Technology 2014 Symposium: “Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way) – Elizabeth Judson Memorial Symposium. Panelists: Doreen Edwards (Alfred University), Stacy Gleixner (San Jose State University), Chris Leighton (University of Minnesota) and Cindy Waters (North Carolina A&T State University).


Along the Way) – Elizabeth Judson Memorial Symposium. Panelists: Alexis Clare (Alfred University), Gary Halada (Stony Brook University), Robert Hull (Rensselaer Polytechnic University) and Lisa M. Porter (Carnegie Mellon University).


23. Invited Presentation, Boise State University College of Engineering Programs and Research Areas, the National Transportation Product Evaluation Program at its national meeting, Boise ID 5/9/2007.


Selected Presentations


49. “Student Success – and Myth Busting,” September 22, 2017, Department of Materials Science and Engineering, the University of Connecticut, Storrs CT.

48. “Materials and Innovation,” Boise Rotary, May 9, 2017, Boise ID.

47. “ABET Information and Evaluator Retraining Session,” April 18, 2017, MRS, Phoenix AZ.


42. Presentation to the House Education Committee, February 17, 2017 regarding the impact of STEM extracurricular education on girls. With Maureen O’Toole, CEO, Girl Scouts of Silver Sage Council.

41. Panel Organizer and Moderator: Ethical Dilemmas: Lessons from the Field, November 16, 2016. Panelists: Dr. Don Plumlee, P.E. Mechanical Engineering; Dr. Mandar Khanal, P.E., Civil Engineering, Dr. Thad Welch, P.E., Electrical Engineering, Idaho Gamma and Alumni, Tau Beta Pi, Boise, ID.


38. “Proposed Changes to ABET Criteria 3 and 5,” March 28, 2016, University Materials Council held as part of MRS meeting, Phoenix, AZ.

37. “Working with Support Course Faculty to Improve Student Learning,” J. Callahan, as part of “Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way): The Elizabeth Judson Memorial Symposium, Columbus, OH Oct. 4-8, 2015.


30. J. Callahan: “Both Sides of the Equation: Learning and Teaching,” a two-day workshop focused on best practices for engaging STEM students in their learning, held August 15-16 and September 20, 2013, Socorro, New Mexico Tech. 28 participants.


20. Presentation to the National Transportation Product Evaluation Program, May 9, 2007: featured speaker, “Introduction to the College of Engineering at Boise State.”


18. Panelist: Department Chairs Workshop, Boise State University, 8/2006


14. ASM Atlanta Chapter, Continuing Education, “Corrosion,” 1/03 (Materials Engineering Institute), Georgia Institute of Technology, Atlanta GA.

13. Georgia Science Teachers Association (GSTA), 2/14/03, Jekyll Island, GA.


9. Coulter Award Presentation (Innovation and Entrepreneurship), College of Engineering, Georgia Institute of Technology, 8/99.


Statement of Vision

The future of engineering education, fundraising and research at Michigan Tech

Janet Callahan, PhD

Engineering education:

Engineering education has come a long way, and it has a long way still to go. I have devoted nearly a decade to improving the engineering experience at Boise State University, and bring strong experience to bear relative to student success. Because engineering BS degrees are founded on one full academic year of credits in mathematics and basic sciences, it’s not well into the second or third year of students’ curricula that students engage in courses associated with discipline-specific knowledge. Therefore, bringing relevancy into mathematics, for example, can make a significant difference to student retention.

One of the key initiatives I led at Boise State University was done in collaboration with the Center for Teaching and Learning and with the department of mathematics. At that time, rapid and almost traumatic growth in engineering student numbers had overwhelmed the capacity of mathematics to scale up their calculus sequence, and the outcome for students resulted in low and varying pass rate levels. It seemed to students to matter more “who you took,” than “what you learned.” To solve the problem, we did not demand that faculty to just get their act together and mandate a common syllabus and final exam. Instead, we procured a large external grant, in which our basic strategy focused on faculty development. We engaged instructional faculty (t-track, lecturer, adjuncts) in voluntary year-long learning communities, to enable deep learning in and engagement with evidence-based instructional practices. With three year-long cohorts of about ten faculty each that met every two weeks, this model led our mathematics department to completely overhaul their calculus sequence. With the chair of mathematics I have written several papers about the results, which increased first-year retention by 3% in STEM, and which also increased the retention of both women and underrepresented minority students in STEM by 9% (STEM: science, technology, engineering and mathematics). The faculty learning community model is extremely effective as it allows time for reflection and dialogue, and provides the support of colleagues as faculty lean out and try new things, such as getting students to think about their learning.

It is extremely important for baccalaureate students to find relevancy in their first-year learning at university. Doing well in tough courses such as the required calculus, chemistry and physics associated with the first year in engineering, positively affects student self-efficacy, helps develop a sense of belongingness, and more. Thus, engineering should play a lead role in valuing, funding, and facilitating instructor development (instruction and coaching for instructors) so as to bring outstanding instruction to students.

If Michigan is anything like Connecticut, Georgia or Idaho (places where I have spent a decade or more across my career), in my experience, students who enter engineering have little (if any) idea about what major to select. If they enter Michigan Tech as a first-year student and they’ve been directed toward engineering, they likely have aptitude in math and sciences, and possibly a relative or family friend/mentor who is an engineer. In high school, perhaps they took biology
and chemistry and possibly even physics. But how do they know if chemical engineering is more aligned with their interests than, for example, materials science? Or if mechanical engineering is a better fit than civil? Or computer, electrical or software engineering?

For these reasons and more, I support, where possible, a common first two or three semesters. During these key entry semesters, it is of high value relative to retention in engineering in general for students to form a cohort and sense of belonging. The literature shows that peers are a significant influence on retention to degree. Thus, taking common classes, learning elements of coding, statics, circuits and materials science together while also advancing in knowledge of math and sciences has great value. Students are not static in their interests – they are in flux, and it is in our best interests to openly acknowledge this and encourage degree exploration.

Graduate student education is an oft-neglected educational sphere. Graduate program faculty naturally focus on technical knowledge and accomplishments as they mentor their graduate students. However, most graduates wind up entering the workforce with few of the needed professional skills that they will need in the workforce, such as project management, leadership and an ability to communicate effectively with non-technical audiences. Fostering professional skill attainment in graduate education is an area where college resources can make a substantial impact in the readiness and future success of masters and doctoral students as they train to enter the workforce. The National Science Foundation has a few educational calls for proposals aimed specifically toward this, which has helped raise awareness of these gaps in graduate education.

In summary, my vision for engineering education involves encouraging learning, and exploring knowledge, for both instructors and students. Excellence in teaching can be learned, and excellence in learning can be taught. We owe it to our students to teach with excellence and to foster the wonder of discovery and problem solving from the moment each student sets foot on campus.

**Fundraising in engineering:**

In a nutshell, fundraising is one of the dean’s most significant functions. The dean is the spokesperson for the college. This means that her job is to tell the story to a variety of stakeholders, some of which are positioned to fund small and large projects. Her job is to brief the research activities of the faculty, the accomplishments of graduate students, the projects and research that undergraduates are engaged in doing.

Several years ago I took a development workshop that lasted a few days where it was suggested that fundraising take up 15 to 20 percent of each dean’s workweek. To do this requires travel and it necessitates research, attendance at events, follow-through, scheduled calls, and more. My perspective is that a dean engages in fundraising and relationship building on a daily basis, which is the foundation upon which successful fundraising is built. Moreover, entering deans build on the foundation laid by others, and on friends of the college of engineering that others have established.

In addition to alumni and individual donors, local and state legislators and government leaders and corporate and community organizations are also important stakeholders in terms of
fundraising. Relationships must be nurtured here as well, and the return to any investor group must be clearly articulated and broadly disseminated. It is essential to tell the story to all the various stakeholders of a college of engineering.

To be effective, deans need to travel to attend numerous events, and this takes them frequently out of office. When deans do this, they appear invisible to faculty – but this is actually not the case. It is an important investment they are making in the future growth and vitality of the college. I also believe that deans should stick around; I do not believe in the four-year dean model that has come into vogue. It is imperative to make and foster connections with alumni and others and that the leadership should be around long enough to meet those alumni and partners at many times in social and business situations.

At Boise State University, my college and the Micron School of Materials Science and Engineering have done an outstanding job of connecting with our stakeholders and with the state of Idaho. For example, Micron Technology has invested a total of $40 million in materials science and engineering alone. They did this in three different gifts. The first gift was for $2 million, to establish materials science and engineering at the university. The launch of a new BS program in materials science and engineering triggered my leaving Georgia Tech to join up as one of the anchor faculty in 2004. Impressed with the rate of return on their initial $2M investment, and needing highly qualified researchers to join the R&D division based in Boise, about seven years later Micron asked us what it would take to launch a PhD program (and we had a ready answer: $13M). Our PhD program now has 46 doctoral students, and our first eight PhD degrees have been awarded. The most recent gift, $25M, is directed toward a research building to house our world-class equipment and interdisciplinary faculty.

**Engineering and research:**
The world’s great challenges and the most important advances occur at the intersection of disciplines. Moreover, academic institutions across the nation are recognizing that they cannot do everything in isolation. Public-private partnerships are important vehicles that provide students with real world research experiences that are often more applied. This is an important consideration as the velocity of moving from basic research through commercialization dramatically increases.

With its historical basis in training mining engineers to extract copper from the regional deposits of copper metal, Michigan Tech is both forged from the nascent copper found in its ground and also a portal to the future. My field, materials science and engineering, tells the story of how advances in materials are intrinsically linked with technological advances. The very “ages of mankind” are marked by phrases that refer to materials (the stone age, bronze age, silicon, and more). After all, as materialists say, “everything is made of something.” Innovation happens when new materials are discovered, new applications of existing materials are found, theories from one field are applied to another, and more. So a dean must foster interdisciplinary and innovation as core principles, finding ways to encourage faculty to learn and take research risks (in a safe way). My background as a metallurgist, chemical engineer and materials scientist ideally position me to help listen to and foster connections between groups.
Across the nation, engineering colleges are at the forefront of broadening the spectrum of research from the very basic through commercialization. Both stakeholders and members of the community look toward engineering for solutions to technical problems and answering questions. My start-up company was a classic example of this – sitting in my office at Georgia Tech one day, my phone rang; it was a cardiologist at Emory University who had a wild idea concerning a new brachytherapy device. Ultimately this led to my taking a two-year leave of absence, as we commercialized the intellectual property I developed on methods of making radioactive coatings to place on angioplasty catheters. At one point, I was doing non-radioactive electroplating in my basement; this before we developed our commercial facilities in Texas. We were eventually bought out, and I returned to academia, but the lessons I learned in my experiences helped shape what I feel to be the role of administration relative to start-ups. We should strongly endorse these activities, we should as much as possible, keep clear the intellectual property, we should foster entrepreneurship, and we should promote and highlight our accomplishments relative to tech startups.

In looking to the future, we all will need to work even more to establish connections to more strongly link with other disciplines, colleges and organizations. Internally there are clear and natural connections between the College of Engineering and the College of Sciences and Arts and with the School of Business and Economics Technology with respect to projects for students to embark upon in their capstone courses and during their research while pursuing graduate degrees. In addition, we must strongly foster international connections, collaborations, study abroad experiences and more. I see this as particularly important for Michigan Tech, which while positioned in an exquisite part of the United States, nonetheless is geographically in a remote part of the United States.

In closing, I look back across my research career and see a path that went from an unexpected discovery as an assistant professor that led to a patent on growing metal nanoparticles in sapphire, all the way up to present day. Today, I work to maximize the mentoring, training and resources available to faculty as we work together to continue to grow into our School’s vision, which is to: “Be a leader of inclusive excellence, empowering world-class students to solve global challenges of enduring significance through materials innovation.” I am an adaptable, resourceful, friendly, eloquent and passionate advocate of engineering, and I would value the opportunity to learn more about the research and engineering education enterprise at Michigan Tech.
David J. Hemmer has accepted the position of dean for the College of Sciences and Arts at Michigan Tech University, effective July 1, 2018. Dr. Hemmer is currently a tenured Professor of Mathematics at the University at Buffalo, SUNY, where he serves as the chair of the Department of Mathematics. He is recommended for tenure at the rank of Professor in the Department of Mathematical Sciences in the College of Sciences and Arts at Michigan Tech.

Academic Degrees:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Year</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>2001</td>
<td>University of Chicago, Chicago, IL</td>
</tr>
<tr>
<td>M.S.</td>
<td>1997</td>
<td>University of Chicago, Chicago, IL</td>
</tr>
<tr>
<td>B.A.</td>
<td>1996</td>
<td>Dartmouth College, Hanover, NH</td>
</tr>
</tbody>
</table>

Professional Record:

<table>
<thead>
<tr>
<th>Year</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 – present</td>
<td>Professor (with tenure) and Chairman, Department of Mathematics, University at Buffalo, SUNY, Buffalo, NY</td>
</tr>
<tr>
<td>2007 – 2012</td>
<td>Associate Professor (with tenure) and Department Director of Undergraduate Studies (2009-2012), University at Buffalo, SUNY, Buffalo, NY</td>
</tr>
<tr>
<td>2008</td>
<td>Member, Mathematical Sciences Research Institute, Berkeley, CA</td>
</tr>
<tr>
<td>2003-2007</td>
<td>Assistant Professor, University of Toledo</td>
</tr>
<tr>
<td>2001-2003</td>
<td>Postdoctoral Fellow, University of Georgia, Athens, GA</td>
</tr>
<tr>
<td>1996-2001</td>
<td>NSF Graduate Fellow, University of Chicago, Chicago, IL</td>
</tr>
</tbody>
</table>

Summary of Accomplishments:

Teaching
Dr. Hemmer has demonstrated a strong commitment to quality education through his own teaching, through his promotion of innovative methods of teaching while department chair, and through his grant activity. He has received strong student evaluations at Buffalo, was a finalist for a university-wide teaching award at UB, and has taught at all levels, from freshman calculus to doctoral-level topics classes. He has offered more than a dozen different courses during his career. He has also directed six senior honors theses and supervised two doctoral students (with four more doctoral students in process). He is the Co-principal Investigator on a $600,000 grant from NSF to promote diversity in graduate education; he is also co-PI on pending NSF project examining gender differences in responding to faculty feedback to students.

Research/Scholarly Activity
Dr. Hemmer is an internationally respected expert in representation theory of finite groups, a branch of pure mathematics. He earned his doctorate at University of Chicago (2001), where he was supported by a prestigious NSF graduate research fellowship. He has obtained continuous NSF and/or NSA funding from 2001-2015—a fairly rare accomplishment for a mathematician.
He has an international reputation for his research, as shown by his frequent invitations to the Oberwolfach Research Institute in Germany, as well as invitations to conferences in Kaiserslautern, Germany (2017) and Singapore (December 2018). He has delivered a total of 48 invited presentations since 2001 and is the author of 21 peer-reviewed publications in leading journals, a number as sole author.

**Service**

Dr. Hemmer has reviewed proposals for the AMS Simons Travel Grants (2013-16), reviewed candidates for the New York Academy of Sciences Blavatnik Awards for Young Scientists (2012-present), and published 31 reviews of mathematics papers in the Math Reviews database. He served as a grant reviewer for the National Science Foundation and National Security Agency from 2010-2014, and has reviewed manuscripts for 15 different mathematical journals and the Cambridge University Press. He has organized three conferences for the American Mathematical Society.

In addition to his work as department chair, he has served on numerous departmental and university committees, including the Executive Committee (elected), the Workload Committee (elected), the committee on departmental hiring and development, the Algebra Exam Committee, the Goldwater Scholarship selection committee, and various ad hoc committees. He has served as the director of undergraduate studies and the chair of the undergraduate committee.

**Recent and Significant Publications/Exhibitions/Performances/Etc.**


David J. Hemmer

Campus Address
Department of Mathematics
244 Mathematics Building
Buffalo, NY 14260
716-645-8775
dhemmer@math.buffalo.edu

EDUCATION:

2001    Ph.D    Mathematics    University of Chicago
Advisor:    Jonathan L. Alperin
Thesis:    Extensions of hook and completely splittable modules for the symmetric group.

1997    M.S.    Mathematics    University of Chicago
1996    B.A.    Mathematics    Dartmouth College

EMPLOYMENT:

2012-Present    Professor and Chairman: Department of Mathematics, University at Buffalo, SUNY
2007- 2012    Associate Professor and Mathematics Department Director of Undergraduate Studies (2009-12), University at Buffalo
2008    Member, Mathematical Sciences Research Institute, Berkeley, CA
2003-2007    Assistant Professor, University of Toledo.
2001-2003    NSF Postdoctoral Fellow, University of Georgia
1996-2001    NSF Graduate Fellow, University of Chicago

GRANT SUPPORT:

Submitted 2017    National Science Foundation Effects of Feedback on College Students’ Math Outcomes, Co-PI, (PI: Lora Park, Psychology) $541,662
2011-2015    National Science Foundation Grant # DMS 1068783: Connections between cohomology and representation theory of symmetric groups, braid groups, Hecke algebras, and algebraic groups. Sole PI. $188,497.
2012-2014    National Security Agency Grant #H98230-12-0924 (Declined): Connections between cohomology and representation theory of symmetric groups, braid groups, Hecke algebras, and algebraic groups. Sole PI, $67,516.
2010-2012  National Security Agency  Grant #H98230-10-0192: Cohomology and representation theory for symmetric and algebraic groups, Sole PI, $58,395.

2006-2010  National Science Foundation  Grant # DMS 0556260: Cohomology and representation theory, Sole PI, $95,427.

2008  Mathematical Sciences Research Institute  Member: Special semester on representation theory of finite groups and related topics, $10,000.

2004-2006  National Security Agency  Grant # H98230-05-1-0023: Modular representation theory and cohomology of the symmetric group and related objects, Sole PI, $30,000.

2001-2004  National Science Foundation  Grant # DMS0102019: Modular representation theory of the symmetric group, Postdoctoral Fellowship, $90,000.

1997-2001  National Science Foundation  Graduate Research Fellowship, $90,000.

PUBLICATIONS:

Refereed Journals:


[16]  David J. Hemmer, “Realizing large gaps in cohomology for symmetric groups,” Algebra and Number Theory (6) 2012 825-832


**Conference Proceedings:**


ADVISING:

Doctoral Students:

As Primary Advisor:

Aparna Upadhyay  Ph.D expected June 2018
Tara Hudson  Ph.D expected June 2018
Naijiang Zeng  Ph.D expected February 2018.
Yin Su  Ph.D expected February 2018
Michael Rosas  Ph.D awarded June 2016.
Craig Dodge  Ph.D awarded June, 2012

As Committee Member:

Ruodan Liu  Ph.D expected June 2019, Advisor: Yiqiang Li
Renda Ma  Ph.D expected June 2019, Advisor: Yiqiang Li
Matthew Sartwell  Ph.D awarded June 2016, Advisor: Bernard Badzioch
Lavinia Ciungu  Ph.D awarded 2010, Advisor: Tom Cusick.

Master’s Student:

Leya Tesmenitsky, MS 2010, “Some new computations of Young module cohomology.”

Undergraduate Senior Honors Theses:

Andrew Adair 2017-18
Joe Ricci BS 2/2012.
Graham Clenaghan 2010
Andrew Hughes 2008-2009
Fangya Tan 2008-2009
Ben Connell 2006-2007
### TEACHING:

**University at Buffalo**

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2017</td>
<td>Math 464/564</td>
<td>Topics in Combinatorial Analysis</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>Math 141</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>Math 353</td>
<td>Introduction to Combinatorics</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Math 461/561</td>
<td>Introduction to Lie Algebras and Representation Theory</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Math 241</td>
<td>Multivariable Calculus</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>Math 141</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>Math 353</td>
<td>Introduction to Combinatorics</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>Math 561</td>
<td>Introduction to Representation theory</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>Math 620</td>
<td>Abstract Algebra II</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>Math 619</td>
<td>Abstract Algebra I</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>Math 620</td>
<td>Abstract Algebra II</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>Math 619</td>
<td>Abstract Algebra I</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>Math 461/561</td>
<td>Introduction to Lie Algebras and Representation Theory</td>
</tr>
<tr>
<td>Fall 2009 :</td>
<td>Math 819</td>
<td>Representation Theory of Finite Groups</td>
</tr>
<tr>
<td>Spring 2009:</td>
<td>Math 620</td>
<td>Abstract Algebra II</td>
</tr>
<tr>
<td></td>
<td>Math 142</td>
<td>Calculus II</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>UE 141</td>
<td>Mathematics of Voting- Undergraduate Discovery Seminar</td>
</tr>
<tr>
<td></td>
<td>Math 619</td>
<td>Abstract Algebra I</td>
</tr>
<tr>
<td></td>
<td>Math 241</td>
<td>Calculus III</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>Math 141</td>
<td>Calculus I</td>
</tr>
<tr>
<td></td>
<td>Math 419</td>
<td>Introduction to Abstract Algebra</td>
</tr>
</tbody>
</table>

**University of Toledo:**

- Honors Calculus I, II
- Business Calculus
- Honors Differential Equations
- Introduction to Combinatorics (designed and taught)
- Graduate Algebra Sequence
- Graduate topics course in representation theory
- Advanced linear algebra
- Introduction to Abstract Algebra

**University of Georgia:**

- Calculus I, II

**University of Chicago:**

- Calculus I, II, III
Externally Funded Invited Talks:

- **Workshop on Gradings and Decomposition Numbers**, University of Stuttgart, September, 2012.
- **Cohomology and Support in Representation Theory**, University of Washington, August, 2012.
- **American Institute of Mathematics**, “Cohomology bounds and growth rates” workshop, June 2012.
- **New York Workshop on Symmetric Groups- Invited Speaker**: September 2011.
- **Southeast Lie Theory- Workshop Leader**, University of Virginia, June 2011.
- **University of South Alabama**: “Frobenius twists for symmetric group module?” Colloquium, March 2011.
- **University of South Alabama**: “Generic cohomology for Specht and Young modules of the symmetric group”, Algebra Seminar, March 2011.
- **Southwest Group Theory Day- Invited Speaker**: “Young modules for the symmetric group with large vanishing ranges in cohomology”, November, 2010.
- **Oberwolfach, Germany**, “Young modules for the symmetric group with large vanishing ranges,” Conference on Cohomology of Finite Groups, July 2010.
- **Southeast Lie Theory Conference- Invited Speaker**: “Vanishing ranges and Young module cohomology for symmetric groups,” May 2010.
- **University of Oklahoma**: “Signed Specht modules for symmetric groups?”, Representation Theory seminar, April 2010.
- **University of Toledo**, Colloquium March 2009
- **University of Virginia**: “An application of algebraic topology to computing cohomology for Young modules of the symmetric group.” Algebra seminar, November 2008.
- **Mathematical Sciences Research Institute**, “An application of topology to computing the cohomology of Young modules for the symmetric group,” Conference on homological methods in representation theory, April 1, 2008.
- **University of Chicago**, Group theory seminar May 2006
• **Ohio State University**, Group Theory Seminar, November 2005
• **University of Chicago**, Group theory seminar April 2004
• **University of Toledo**, Colloquium, February 2003.
• **Wayne State University**, Colloquium, February 2003.
• **University of South Alabama**, Colloquium, January 2003.
• **University of Chicago** Group Theory Seminar, April 2002
• **Dartmouth College**, “The Ext^1 quiver for completely splittable representations for symmetric groups,” Colloquium, May 2001

Other invited talks

• **AMS Sectional Meeting**, Orlando, FL, September 2017
• **AMS joint annual meeting**, Gelfand-Zetlin lattices in Specht modules for symmetric groups., January 2017.
• **AMS meeting**, The complexity of the Lie module, October 2015, Fullerton, CA.
• **AMS meeting**, A Burnside-type theorem for exterior powers of symmetric group characters, September 2014, Eau Claire-WI.

• **Science and Art Cabaret, Hallwalls Contemporary Arts Center**, On the Cantor set: when 1-1 ≠ 0,” Buffalo, NY, April 2013.

• **AMS meeting**, “Generic cohomology for Young modules of the symmetric group,” Kalamazoo, MI. Special session on computation in modular representation theory and cohomology.


• **AMS meeting**, “A row removal theorem for the Ext^1 quiver of symmetric groups and Schur algebras,” Chapel Hill, NC. Special session on group cohomology and algebra and geometry. October 2003.
• **AMS meeting**, “Cohomology for symmetric groups,” Madison, WI. Special session on Lie theory, October 2002
• **AMS/MAA National Meeting**, “The Ext^1 quiver for completely splittable representations for symmetric groups,” New Orleans, Special session on representation theory of finite and algebraic groups, January 2001
Other Talks:

- University at Buffalo, math club, November 2014.
- Canisius College, math club, February 2010.
- University at Buffalo, math club, January 2010.
- University at Buffalo, SUNY algebra seminar. Multiple talks fall 2009.
- University at Buffalo, SUNY, Colloquium February 2007.
- University of Denver, Colloquium February 2007.
- University of Georgia, Algebra Seminar, November 2005
- University of Georgia, Algebra Seminar, March 2005
- University of Georgia, Algebra Seminar, August 2004.
- University of Northern Illinois, Colloquium, April 2004
- Ohio State University, Algebra seminar, February 2004
- University of Georgia, Algebra seminar, January 2004
- University of Bristol, Colloquium, May 2003
- University of Leicester, Pure maths seminar, May 2003
- Oxford University, Representation theory seminar, May 2003.
- Oxford University, Algebra Seminar, May 2003.
- University of Georgia, Undergraduate math club, April 2003.
- University of Georgia, Group cohomology and representation theory seminar, 2002
- Depaul University, Midwest algebra and representation theory conference, December 2001
- University of Chicago, Group theory seminar, February 2001

PROFESSIONAL SERVICE

- **AMS Simons Travel Grant Committee 2013-2016**: Reviewed Simons travel grants.
- **Blavatnik Awards for Young Scientists: 2012-Present**. Serves as reviewer and on panel for New York Academy of Sciences.
- **Math Reviews**: Major database for published mathematics papers. I have had published 31 reviews since 2001.
- **NSF Panels**: I participated in NSF Grant or Fellowship review panels in 2010 and 2011, 2012, 2013, 2014
- **Referee**: In recent years I have refereed journal submissions or book proposals for:
Advances in Mathematics  
Algebras and Representation Theory  
Algebra Colloq.  
Bulletin of the Institute of Mathematics Academia Sinica  
Cambridge University Press  
Communications in Algebra  
Journal of Algebra  
Journal of Algebraic Combinatorics  
Journal of Combinatorial Theory  
Journal of Group Theory  
Journal of Pure and Applied Algebra  
Pacific Journal of Mathematics  
Proceedings of the London Mathematical Society  
Proceedings of the American Mathematical Society  
Transactions of the American Mathematical Society  

- **Memberships:** American Mathematical Society, Mathematical Association of America.

- **VIGRE group leader:** I directed a research seminar for undergraduates, graduate students and faculty on the Alperin weight conjecture for symmetric groups as part of the University of Georgia’s VIGRE program. This program was funded by an NSF grant of more than $3 million.

- **Conference Organizer:** C. Pillen and I organized a special session at the annual AMS meeting in Atlanta in January 2005. These sessions are competitively chosen.

- **Conference Organizer:** E. Wiesner and I organized a special session at the AMS meeting in Syracuse, October 2010.

- **Conference Organizer:** S. Danz and I organized an Oberwolfach workshop in April of 2011. These workshops are competitively chosen.

- **Conference Organizer:** Yiqiang Li and I organized a special session at the AMS meeting in Rochester in September 2012.

**UNIVERSITY SERVICE**

**Committee Service:**

2016-Present  **Goldwater Scholarship Selection Committee**

2011-Present  **Honors College Research and Creative Activities Scholarship Panel:** Awards grants twice per year for student research projects. Students prepare a “grant proposal” under faculty guidance

2014  **Music Theory Faculty Hiring Committee**
DEPARTMENTAL SERVICE

Committee Service:

2008-Present  Executive Committee (elected): Handles departmental hiring, leave requests, evaluation and renewal of junior faculty. Is the department voting body of record on tenure and promotion cases. Is responsible for most important departmental policy decisions.


2011-2012  Workload Committee (elected): Evaluates faculty CV’s and other material to make recommendations to the chair regarding faculty teaching loads.

2011-2012  Committee on Departmental Hiring and Development: Charged to develop a written 5-10 year hiring plan for the department and to provide the basis for a new departmental 5-year plan.

2009-2012  Director of Undergraduate Studies: Advises all mathematics majors (roughly 100 degrees/year conferred). Evaluates more than 400 transfer course articulations each year. Maintains and updates departmental catalog entries. Coordinates undergraduate scholarships and awards.

2009-2012  Chair: Undergraduate Studies Committee: ex-officio job for the Director of Undergraduate Studies.

2007-2011  Colloquium Committee

2009-2010  Tenure Advocate: Advocate for tenure and promotion case of Dr. Manning.

2010-2011  Ad-hoc Departmental Workload Policy Committee: Tasked with evaluating the current departmental workload policy and suggesting a replacement if appropriate. The workload policy was replaced with a new, more flexible policy that is being phased in beginning with the 2011-12 academic year.

2009-2011  Ad-hoc Website Committee: Helped design and coordinate (with the A&S web designers) the new mathematics department website, which went live in August 2011.

2009-2010  Tenure Advocate: Advocate for tenure and promotion case of Dr. Badzioch.

2008  Ad-hoc Committee on the Chair: Committee is formed each time a chair is to be appointed or reappointed, having various functions including determining the department’s preferences, soliciting potential candidates, etc.
Statement of Leadership Style- David Hemmer

One thing I have learned as department chair is the importance of taking advantage of the talents of my colleagues. They consistently impress me with their ideas. Making the most of my colleague’s talents and interests is an important part of my job. When difficult decisions arise (for example in hiring), I make sure everyone feels he or she has had a chance to share their thoughts, and we come to a consensus whenever possible. A recent tenure-track hiring decision badly divided our executive committee. After a long discussion, we were split 5-4. I asked “Is everyone satisfied they have been heard? Will anyone be upset if we make the decision based on this vote?” Everyone was fine and the decision, while close and hard-fought, left everyone with a good feeling. Many of the accomplishments in my cover letter occurred during my term but owe a great deal to me just allowing my colleagues to run with great ideas.

I also believe in honesty and transparency. If I make a commitment, I will stick by it, and if I make a difficult decision, I will describe how I came to make it. Last year our College cut roughly 50 TA lines from 600 total. There was almost no transparency, it was not made public which departments received cuts, and the standards for allocating the cuts were not made clear. This let to bitterness among chairs and unhealthy gossip. It appears more cuts are coming this year, but I have convinced our dean to do it in a completely transparent way.

I have seen the agenda’s for your annual college meeting and I am so impressed without how open the dean’s office is about everything, which department’s hired, who was generating research money, who was winning awards, etc… I would be happy to continue this level of transparency as your dean.
V-E. APPOINTMENTS, NOT INVOLVING TENURE AND/OR PROMOTION

The departments, with the support of the college or school, have requested that the individuals listed herein be granted faculty appointments. The administration has reviewed these faculty appointments and supports the recommendations of the departments.

RECOMMENDATION: That the Board of Trustees approves the appointments listed herein. The appointments do not include tenure or promotion.
In accordance with Board of Trustees Policy 2.2, Duties and Powers of the President, I am submitting the following faculty appointment recommendations for your review and subsequent approval by the Board of Trustees at their meeting on May 4, 2018.

**Appointment without Tenure for Two Years**

**Effective August 20, 2018**

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erika Hersch-Green</td>
<td>Assistant Professor</td>
<td>Biological Sciences</td>
</tr>
<tr>
<td>Xiaohu Tang</td>
<td>Assistant Professor</td>
<td>Biological Sciences</td>
</tr>
<tr>
<td>Ebenezer Tumban</td>
<td>Assistant Professor</td>
<td>Biological Sciences</td>
</tr>
<tr>
<td>Xiaohu Xia</td>
<td>Assistant Professor</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Elizabeth Veinott</td>
<td>Associate Professor</td>
<td>Cognitive &amp; Learning Sciences</td>
</tr>
<tr>
<td>Andrew Fiss</td>
<td>Assistant Professor</td>
<td>Humanities</td>
</tr>
<tr>
<td>Marcelino Viera-Ramos</td>
<td>Assistant Professor</td>
<td>Humanities</td>
</tr>
<tr>
<td>Steven Elmer</td>
<td>Assistant Professor</td>
<td>Kinesiology &amp; Integ Physiology</td>
</tr>
<tr>
<td>John Gruver</td>
<td>Assistant Professor</td>
<td>Mathematical Sciences</td>
</tr>
<tr>
<td>Yeonwoo Rho</td>
<td>Assistant Professor</td>
<td>Mathematical Sciences</td>
</tr>
<tr>
<td>Jie Sun</td>
<td>Assistant Professor</td>
<td>Mathematical Sciences</td>
</tr>
<tr>
<td>Zeying Wang</td>
<td>Assistant Professor</td>
<td>Mathematical Sciences</td>
</tr>
<tr>
<td>Jae Yong Suh</td>
<td>Assistant Professor</td>
<td>Physics</td>
</tr>
<tr>
<td>Sarah Scarlett</td>
<td>Assistant Professor</td>
<td>Social Sciences</td>
</tr>
<tr>
<td>Roman Sidortsov</td>
<td>Assistant Professor</td>
<td>Social Sciences</td>
</tr>
<tr>
<td>Lisa Johnson de Gordillo</td>
<td>Assistant Professor</td>
<td>Visual and Performing Arts</td>
</tr>
<tr>
<td>Rebecca Ong</td>
<td>Assistant Professor</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>Lei Pan</td>
<td>Assistant Professor</td>
<td>Chemical Engineering</td>
</tr>
</tbody>
</table>
### Tenure Track Faculty Appointment Recommendations

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snehamoy Chatterjee</td>
<td>Assistant Professor</td>
<td>Geol &amp; Mining Engr &amp; Sciences</td>
</tr>
<tr>
<td>Chad Deering</td>
<td>Assistant Professor</td>
<td>Geol &amp; Mining Engr &amp; Sciences</td>
</tr>
<tr>
<td>Andrew Barnard</td>
<td>Assistant Professor</td>
<td>Mech Engr-Engg Mechanics</td>
</tr>
<tr>
<td>Sajjad Bigham</td>
<td>Assistant Professor</td>
<td>Mech Engr-Engg Mechanics</td>
</tr>
<tr>
<td>Darrell Robinette</td>
<td>Assistant Professor</td>
<td>Mech Engr-Engg Mechanics</td>
</tr>
<tr>
<td>Trisha Sain</td>
<td>Assistant Professor</td>
<td>Mech Engr-Engg Mechanics</td>
</tr>
<tr>
<td>Ye Sun</td>
<td>Assistant Professor</td>
<td>Mech Engr-Engg Mechanics</td>
</tr>
<tr>
<td>Zequn Wang</td>
<td>Assistant Professor</td>
<td>Mech Engr-Engg Mechanics</td>
</tr>
<tr>
<td>Heather Knewtson</td>
<td>Assistant Professor</td>
<td>School of Business &amp; Economics</td>
</tr>
<tr>
<td>Yvette Dickinson</td>
<td>Assistant Professor</td>
<td>School of Forest Res. &amp; Env. Science</td>
</tr>
<tr>
<td>Curtis Edson</td>
<td>Assistant Professor</td>
<td>School of Forest Res. &amp; Env. Science</td>
</tr>
<tr>
<td>Matthew Kelly</td>
<td>Assistant Professor</td>
<td>School of Forest Res. &amp; Env. Science</td>
</tr>
<tr>
<td>Xinfeng Xie</td>
<td>Assistant Professor</td>
<td>School of Forest Res. &amp; Env. Science</td>
</tr>
</tbody>
</table>

**Appointment without Tenure for One Year**  
**Effective August 20, 2018**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy Lark</td>
<td>Assistant Professor</td>
<td>Cognitive &amp; Learning Sciences</td>
</tr>
<tr>
<td>Mark Rouleau</td>
<td>Assistant Professor</td>
<td>Social Sciences</td>
</tr>
</tbody>
</table>

I will be sending formal notification of these decisions to each individual on Monday, April 2, 2018.

**APPROVED:**

[Signature]

Glenn D. Mroz  
President

[Signature]

Date
V-F. APPOINTMENTS, INVOLVING TENURE AND/OR PROMOTION

The policy for granting tenure and/or promotion to faculty members requires that the process begin with deliberations in the candidate's department and proceed through the respective colleges and schools. Once approved, it is presented to the Provost, and if successful, to the President of the University. The candidates listed herein have met all the requirements and are being recommended for tenure and/or promotion.

RECOMMENDATION: That the Board of Trustees approves the appointments involving tenure and/or promotion listed herein.
TO: Glenn Mroz, President
FROM: Jacqueline E. Huntoon, Provost & Vice President for Academic Affairs
DATE: April 6, 2018
SUBJECT: Tenure with Promotion Recommendations

In accordance with Board of Trustees Policy 6.4, Academic Tenure and Promotion, the following faculty members have been recommended for promotion with tenure. I have reviewed and support these recommendations and request that the Board of Trustees be asked to approve them at their May 4, 2018 meeting. If approved, the promotions will be effective August 20, 2018.

Promotion from Assistant Professor without Tenure to Associate Professor with Tenure

Thomas Werner  Biological Sciences
Loredana Valenzano  Chemistry
Carlos Amador  Humanities
Dana Van Kooy  Humanities
Cecil Piret  Mathematical Sciences
Donald Lafreniere  Social Sciences
Jonathan Robins  Social Sciences
Jingfeng Jiang  Biomedical Engineering
Sumit Paudyal  Electrical and Computer Engineering
Sunil Mehendale  School of Technology

APPROVED:

Glenn D. Mroz, President

Date
V-G. PROMOTIONS

The policy for promotions of faculty members requires that the process starts with deliberations in the candidate’s department and proceed through the respective colleges and schools. Once approved, it is presented to the Provost, and if successful, to the President of the University. The candidates listed herein have met all the requirements and have been approved for promotion.

RECOMMENDATION: That the Board of Trustees approves the promotions listed herein.
TO: Glenn Mroz, President
FROM: Jacqueline E. Huntoon, Provost & Vice President for Academic Affairs
DATE: April 6, 2018
SUBJECT: Promotion Recommendations

In accordance with Board of Trustees Policy 6.4, Academic Tenure and Promotion, the following faculty members have been recommended for promotion. I have reviewed and support these recommendations and request that the Board of Trustees be asked to approve them at their May 4, 2018 meeting. If approved, the promotions will be effective August 20, 2018.

Promotion from Associate Professor with Tenure to Professor with Tenure

Rupali Datta Biological Sciences
Petra Huitemeyer Physics
Claudio Mazzoleni Physics
Stanley Vitton Civil and Environmental Engineering
Elena Semouchkina Electrical and Computer Engineering
Simon Carn Geological and Mining Engnr and Sciences
Bo Chen Mechanical Engnr-Engnr Mechanics
Seong-Young Lee Mechanical Engnr-Engnr Mechanics
Mari Buche School of Business and Economics
Hairong Wei School of Forest Res. and Env. Science
Aleksandr Sergeyev School of Technology

APPROVED:

Glenn D. Mroz, President

Date
V-H. PROPOSAL FOR A PHD IN STATISTICS

The faculty members in the Department of Mathematical Sciences at Michigan Technological University seek to establish a Doctor of Philosophy (PhD) program in Statistics. Graduates of this degree program will have advanced knowledge of the theory and practice of statistics. Graduates will be well prepared for a faculty position or for the job market. Although the master's degree is the entry-level degree for most positions in industry, there are numerous positions (e.g., at medical clinics, research hospitals, and pharmaceutical companies) for which a PhD is advantageous or required.

Michigan Tech students have been able to earn a PhD in Mathematical Sciences with a focus on Statistics for more than 20 years. This proposal will create a stand-alone PhD in Statistics to give more visibility to the program among both prospective students and prospective employers.

"Statistician" is number seven on the Bureau of Labor Statistics (BLS) list of fastest growing occupations, with a predicted increase of 33% in positions over the period 2016-2026.

The proposal has been approved by the University Senate, the Provost and Vice President for Academic Affairs on behalf of the University Administration. The University is seeking Board of Trustees approval to advance the proposal to the State Academic Affairs Officers.

RECOMMENDATION: That the Board of Trustees approves the PhD in Statistics.
The University Senate of Michigan Technological University
Proposal 12-18
(Voting Units: Academic)
"A Proposal for a New PhD Degree in Statistics"
(Department of Mathematical Sciences)

Introduction The Department of Mathematical Sciences currently offers a PhD in Mathematical Sciences that can be completed with one of four focus areas: Computational and Applied Mathematics, Discrete Mathematics, Pure Mathematics, and Statistics. We propose to spin off the Statistics focus area to a stand-alone degree program.

1. **Date submitted:** October 11, 2017.

2. **Contact:** Mark S. Gockenbach, Professor and Chair, Department of Mathematical Sciences (mgocken@mtu.edu, 487-2068).

3. **Interdisciplinary support:** Not applicable.

4. **General description and characteristics of program:** Graduates are expected to achieve the five learning goals established for our M.S. in Statistics, along with two additional goals.
   
   (a) Graduates can choose a statistical method that is appropriate for a given problem, can justify the choice theoretically, can apply the method, and can draw appropriate conclusions.
   
   (b) Graduates can use popular statistical software to solve realistic problems.
   
   (c) Graduates can summarize and explain the results of statistical analyses orally and in writing.
   
   (d) Graduates have experience working in teams.
   
   (e) Graduates know how to work with real data. They can clean the data, deal with missing data values, and generally appreciate the complexities of handling real-world data.
   
   (f) Graduates can carry out research in statistical science.
   
   (g) Graduates can access and read statistical literature.

Students are required to complete the coursework from our M.S. in Statistics, to do advanced courses in Probability and in Statistics, and to complete two "breadth" courses in mathematics or another cognate discipline. The Qualifying and Comprehensive examinations are used to ensure that the first learning goal is achieved. Goals (b)–(e) are achieved through coursework while the last two goals are achieved through the process of writing a dissertation.

5. **Rationale:**

   (a) We are proposing the stand-alone degree for two reasons:

   i. To give more visibility to our program (students interested in studying Statistics may not even notice a degree in "Mathematical Sciences with a focus area in Statistics").
   
   ii. To remove a possible disadvantage for our graduates (employers who want to hire a Statistician might be suspicious of a candidate with a degree in Mathematical Sciences).
(b) "Statistician" is number seven on the Bureau of Labor Statistics (BLS) list of fastest growing occupations, with a predicted increase of 33% in positions over the period 2016-2026. (The average growth for all occupations is predicted to be about 7%.) According to the BLS, "Statisticians typically need at least a master's degree in statistics, mathematics, or another quantitative field. However, a bachelor's degree is sufficient for some entry-level jobs."

Across the United States, the number of statistics degrees awarded has been steadily increasing, as shown in the following chart:

![Statistics and Biostatistics Degrees Chart]

As these data show, there is strong demand for advanced degrees in Statistics, both from students and the job market. The proposed degree program, which already exists under a different name, has a record of preparing students for both the academic and non-academic job markets.

6. Related programs:

(a) At Michigan Tech: none.

(b) At other institutions: Numerous institutions in the region and around the country offer a PhD in Statistics. Here are three regional examples:

i. University of Michigan, PhD in Statistics. This program requires six graduate courses in probability and statistics (chosen from a list of eight courses), a two-part qualifying exam, and a dissertation.

ii. Michigan State University, PhD in Statistics. This program requires 13 courses in probability and statistics, a preliminary exam that covers probability and statistics, and a dissertation.

iii. University of Wisconsin, PhD in Statistics. This program requires 12 courses in probability and statistics, a qualifying exam, an oral preliminary exam, and a dissertation.

Our course requirement of ten courses is more than required by University of Michigan, but less than required by Michigan State University and the University of Wisconsin. In each case, there is significant overlap in the content of required courses. All programs require a year of Mathematical Statistics, at least one graduate course in Probability, and courses on statistical methods.

7. Projected enrollment: We expect a combined enrollment of about 15 students in the M.S. and PhD programs.

---

8. **Scheduling plans:** Regular.

9. **Curriculum design:**

   (a) Complete the following courses (equivalent to the requirements for our M.S. in Statistics):
   
   i. MA6711 and MA6712 (Mathematical Statistics I and II)
   
   ii. MA6731 (Linear Models)
   
   iii. MA5741 (Multivariate Statistics)
   
   iv. Two graduate electives in Statistics

(b) Complete the following additional coursework:

   i. MA6700 (Probability)

   ii. MA6701 (Advanced Topics in Statistics)

   iii. Two graduate courses in mathematics or another cognate discipline

(c) Pass the written Qualifying Examination on Linear Algebra and Mathematical Statistics before the end of the second year in the PhD program. (A student who fails to pass the Qualifying Examination by the stated deadline can complete a master's degree but cannot continue in the PhD program.)

(d) Pass the written Comprehensive Examination on Mathematical Statistics and Linear Models. (By Graduate School rules, the Comprehensive Examination must be passed by the end of the fifth year in the PhD program. We recommend that it be passed by the end of the third year.)

(e) Write and defend a dissertation describing original research.

10. **New course descriptions:** None.

11. **Model schedule:** For students entering without a master's degree in Statistics, the PhD is expected to take about five years:

   Years 1 & 2: Complete M.S. coursework, pass Qualifying exam.
   
   Year 3: Complete MA6700 and MA6701, pass Comprehensive exam, begin research.
   
   Year 4: Complete cognate coursework, continue research.
   
   Year 5: Complete research, write and defend dissertation.

   Note that we do encourage students to begin dissertation research before year three when possible.

**Model schedule for students entering with an M.S. in Statistics** For such students, the PhD is expected to take three to four years:

   Year 1: Complete MA6700 and MA6701, pass Qualifying exam, begin research.
   
   Year 2: Complete cognate coursework, pass Comprehensive exam, continue research.
   
   Year 3 (& 4, if needed): Complete research, write and defend dissertation.

12. **Library and other learning resources needed:** None; current resources are adequate.

13. **Faculty resumes:** www.math.mtu.edu/~msgocken/StatisticsCVs.

14. **Description of available/needed equipment:** The Tech standard computer lab image includes the statistical software packages R and SAS, and also standard office productivity software. This is sufficient for students in the PhD in Statistics. No other equipment is needed.

15. **Program costs, years 1, 2, and 3:** No additional costs are expected. This degree is already being offered under the title “PhD in Mathematical Sciences.” There is no intent to increase enrollment, and therefore no increased costs are expected.
16. **Space:** No new space is needed.

17. **Policies, regulations, and rules:** Admission to the degree follows usual departmental and graduate school policies.

18. **Accreditation requirements:** Not applicable.

19. **Planned implementation date:** Fall 2018
V-I. PROPOSAL FOR A MASTER OF SCIENCE DEGREE IN STATISTICS

The faculty members in the Department of Mathematical Sciences at Michigan Technological University seek to establish a Master of Science (M.S.) program in Statistics. This degree program will provide a strong foundation in the theory and practice of statistics. Graduates will be well prepared for a PhD in Statistics or for the job market. The master's degree is the entry-level degree for most positions in industry.

Michigan Tech students have been able to earn an M.S. in Mathematical Sciences with a focus on Statistics for more than 20 years. This proposal will create a stand-alone M.S. in Statistics to give more visibility to the program among both prospective students and prospective employers.

"Statistician" is number seven on the Bureau of Labor Statistics (BLS) list of fastest growing occupations, with a predicted increase of 33% in positions over the period 2016-2026. According to the BLS, "[s]tatisticians typically need at least a master's degree in statistics, mathematics, or another quantitative field."

The proposal has been approved by the University Senate, the Provost and Vice President for Academic Affairs on behalf of the University Administration. The University is seeking Board of Trustees approval to advance the proposal to the State Academic Affairs Officers.

RECOMMENDATION: That the Board of Trustees approves the Master of Science Degree in Statistics.
The University Senate of Michigan Technological University  
Proposal 13-18  
(Voting Units: Academic)  
"A Proposal for a New Master of Science Degree in Statistics"  
(Department of Mathematical Sciences)  

**Introduction** The Department of Mathematical Sciences currently offers an M.S. degree in Mathematical Sciences that can be completed with one of four focus areas: Computational and Applied Mathematics, Discrete Mathematics, Pure Mathematics, and Statistics. We propose to spin off the Statistics focus area to a stand-alone degree program.

1. **Date submitted:** October 11, 2017.

2. **Contact:** Mark S. Gockenbach, Professor and Chair, Department of Mathematical Sciences (msgocken@mtu.edu, 487-2068).

3. **Interdisciplinary support:** Not applicable.

4. **General description and characteristics of program:** There is no accrediting agency for degree programs in Statistics. However, the American Statistical Association organized a working group that recently published the "Report of the ASA Workgroup on Master's Degrees" (November 2012). This report made the following recommendations:

   (a) Graduates should have a solid foundation in statistical theory and methods.

   (b) Programming skills are critical and should be infused throughout the graduate student experience.

   (c) Communication skills are critical and should be developed and practiced throughout graduate programs.

   (d) Collaboration, teamwork, and leadership development should be part of graduate education.

   (e) Students should encounter non-routine, real problems throughout their graduate education.

   (f) Internships, co-ops or other significant immersive work experiences should be integrated into graduate education.

   (g) Programs should be encouraged to periodically survey recent graduates and employers of their recent graduates as a means of evaluating the success of their programs and to examine if other programmatic changes are warranted.

The first five recommendations simply describe desirable learning goals and outcomes. We have designed the proposed degree program so that students will achieve the corresponding outcomes, as follows.

(a) Graduates can choose a statistical method that is appropriate for a given problem, can justify the choice theoretically, can apply the method, and can draw appropriate conclusions. All students must take a two-semester sequence on

---

Mathematical Statistics and courses on Linear Models and Multivariate Statistics. These courses cover the basic theory of statistics. They must also take at least two graduate electives in statistics (most of which address applied statistics). These requirements are built on top of the expected prerequisites for the program, which include introductory statistics, probability, linear regression, and the design of experiments.

(b) **Graduates can use popular statistical software to solve realistic problems.** Students admitted to this program are expected to have some knowledge of statistical software, and all courses (with the exception of Mathematical Statistics) involve significant use of statistical software for course homework and projects. In addition, students can choose the elective course Computational Statistics to develop a stronger background in computing.

(c) **Graduates can summarize and explain the results of statistical analyses orally and in writing.** The required course on Multivariate Statistics assigns a significant project with an oral and written report. Several of the elective courses have similar requirements. For instance, Predictive Modeling requires two in-class presentations and a written report. Computational Statistics requires one in-class presentation and a final written report. Statistical Consulting gives students experience in communicating with clients.

(d) **Graduates have experience working in teams.** The project in Multivariate Statistics is a team project, allowing students the opportunity to develop collaboration and teamwork skills. The elective course on Statistical Consulting also requires a team project. Many of the courses involve occasional group work.

(e) **Graduates know how to work with real data.** They can clean the data, deal with missing data values, and generally appreciate the complexities of handling real-world data. Most of the required courses and electives (again, excluding the Mathematical Statistics sequence) assign problems or projects involving real data. Several of the courses require significant projects.

We have not included an internship requirement in the design of the degree. However, students are encouraged to pursue internship opportunities in the summer.

5. **Rationale:**

(a) We are creating the stand-alone degree for two reasons:

i. To give more visibility to our program (students interested in studying Statistics may not even notice a degree in “Mathematical Sciences with a focus area in Statistics”).

ii. To remove a possible disadvantage for our graduates (employers who want to hire a Statistician might be suspicious of a candidate with a degree in Mathematical Sciences).

(b) “Statistician” is number seven on the Bureau of Labor Statistics (BLS) list of fastest growing occupations, with a predicted increase of 33% in positions over the period 2016–2026. (The average growth for all occupations is predicted to be about 7%.) According to the BLS, “[s]tatisticians typically need at least a master’s degree in statistics, mathematics, or another quantitative field. However, a bachelor’s degree is sufficient for some entry-level jobs.”

Across the United States, the number of statistics degrees awarded has been steadily increasing, as shown in the following charts:

\[\text{\textsuperscript{2}}\text{Taken from Statistics Degrees Continue Strong Growth, Amstat News (American Statistical Association), 1 October 2015, http://magazine.amstat.org/blog/2015/10/01/statistics-degrees-continue-strong-growth/}\]
As these data show, there is strong demand for advanced degrees in Statistics, both from students and the job market. The proposed degree program, which already exists under a different name, has a record of preparing students for the job market and for PhD programs.

6. Related programs:

(a) At Michigan Tech:
   i. M.S. in Data Science (interdisciplinary program). This is a broader curriculum, including work in computer science and application areas in addition to statistics. Depending on the individual student’s choice of electives, 10% to 50% of the coursework in the Data Science curriculum consists of statistics courses.
   ii. M.S. in Applied Statistics (new degree proposal; currently under review). This curriculum is more applied and is not intended for students intending to continue for a PhD in Statistics. Many graduate electives in Statistics are available to both programs.

(b) At other institutions: Numerous institutions in the region and around the country offer a master’s degree in Statistics. Here are three regional examples:
   i. Michigan State University, M.S. in Statistics. This program requires 30 credits of coursework, with four required courses. Three of these required courses are very similar to our required courses on Mathematical Statistics (I and II) and Linear Models.
   ii. Western Michigan University, M.S. in Statistics. This program requires 32 credits of coursework, with five required courses. Three of these courses are similar to ours (two courses on statistical theory and one on linear models), and a fourth (Design of Experiments) is a prerequisite for our program. (Students admitted to our program who have not previously taken Design of Experiments are directed by their advisor to take the course as an elective.)
   iii. University of Wisconsin, M.S. in Statistics. Five courses are required, including two semesters of theory (similar to our required courses Mathematical Statistics I and II) and two semesters on regression and the analysis of variance (which have significant overlap with our required courses on Linear Models and Multivariate Statistics). The UW degree requires a course on statistical consulting, which is an elective for our program.
7. **Projected enrollment:** We expect a combined enrollment of about 15 students in the M.S. and PhD programs.

8. **Scheduling plans:** Regular.

9. **Curriculum design:** The M.S. in Statistics will be offered under the Thesis Option, Report Option, and Coursework (with exam) Option. Here are the course requirements:

   (a) Complete the following required courses:

   - MA5711 Mathematical Statistics I  Fall
   - MA5712 Mathematical Statistics II  Spring
   - MA5731 Linear Models  Fall
   - MA5741 Multivariate Statistics  Spring

   (b) Complete at least two electives, chosen from among the following:

   - MA5702 Statistical Consulting  Spring
   - MA5730 Nonparametric Statistics  Fall (alternate years)
   - MA5732 Generalized Linear Models  Spring (alternate years)
   - MA5750 Statistical Genetics  Spring (alternate years)
   - MA5761 Computational Statistics  Fall
   - MA5770 Bayesian Statistics  Fall (alternate years)
   - MA5781 Time Series Analysis and Forecasting  Spring
   - MA5790 Predictive Modeling  Fall
   - MA5791 Categorical Data Analysis  Spring (alternate years)
   - MA6700 Advanced Topics in Statistics  Spring (alternate years)
   - MA6701 Probability  Fall (alternate years)

Additional coursework, as needed (three credits for the Thesis Option, six credits for the Report Option, and 12 credits for the Coursework Option, can be chosen from the above list or from 4000 and 5000-level courses in mathematics. Note that coursework on computational mathematics, especially numerical linear algebra and optimization, would be advantageous for students who want more emphasis on computational statistics.

**Accelerated M.S. option** The accelerated M.S. is open only to Michigan Tech undergraduates majoring in Statistics. Students must be admitted to the accelerated M.S. degree before graduation, and ideally before the beginning of their senior year. The following courses will count toward both the B.S. and M.S. degrees:

   - MA4710 Regression Analysis  Fall
   - MA4720 Design and Analysis of Experiments  Spring

**Recommended electives** If possible, accelerated M.S. students should take the following electives while undergraduates:

   - MA4350 Linear Algebra  Fall
   - MA4450 Real Analysis  Fall

These additional mathematics courses will help prepare students for the graduate sequence in Mathematical Statistics (MA5711, MA5712) and the required courses on Linear Models (MA5731) and Multivariate Statistics (MA5741). They are especially recommended for students who may wish to pursue a PhD in Statistics following the accelerated M.S.
10. **New course descriptions**: None. The schedule of offered courses is being modified to meet the needs of the accelerated master’s degree option.

11. **Model schedule**:

   **Year 1**:
   - **Fall**: MA5711, MA5731, plus an elective chosen from the following:
     - MA3740 Statistical Programming and Analysis
     - MA4710 Regression Analysis
     - MA5761 Computational Statistics
     - MA5730 Nonparametric Statistics (offered in odd years)
     - MA5770 Bayesian Statistics (offered in even years)
     - MA5790 Predictive Modeling
   - **Spring**: MA5712, MA5741, plus an elective chosen from the following:
     - MA4720 Design & Analysis of Experiments
     - MA5702 Statistical Consulting
     - MA5750 Statistical Genetics (offered in odd years)
     - MA5732 Generalized Linear Models (offered in even years)
     - MA5781 Time Series Analysis and Forecasting
     - MA5791 Categorial Data Analysis (offered in even years)

   **Year 2**:
   - **Fall**: Further electives and/or thesis research.
   - **Spring**: Further electives and/or thesis research.

   Note that most students pursuing this degree are supported on teaching or research assistantships and complete the degree in two academic years.

**Model schedule for accelerated M.S.** The following schedule completes the B.S. and M.S. in Statistics in five years.

**Year 1**

- **Fall**: (14 credits)
  - UN1015 (Composition)
  - CH1150 (University Chemistry I)
  - CH1151 (University Chemistry Lab I)
  - MA1910 (Exploring Symmetry Groups) (free elective credit)
  - MA1160 (Calculus with Technology I)

- **Spring**: (16 credits)
  - UN1025 (Global Issues)
  - GE 2000 (Understanding the Earth)
  - MA2160 (Calculus with Technology II)
  - MA2710 (Introduction to Statistical Analysis)
  - General Education Critical and Creative Thinking Core course

**Year 2**

- **Fall**: (16 credits)
  - MA3160 (Multivariable Calculus with Technology)
Formal Session of the Board of Trustees - V. Action/Discussion Items

- MA3740 (Statistical Programming and Analysis)
- General Education Social Responsibility and Ethical Reasoning Core course
- HASS Communication/Composition course (3 credits)
- Free electives (3 credits)

Spring: (16 credits)
- MA2330 (Introduction to Linear Algebra)
- MA3750 (Introduction to SAS Programming)
- HASS Humanities and Fine Arts course (3 credits)
- Free electives (6 credits)
- Approved cognate course (3 credits)

Year 3

Fall: (16 credits)
- MA3720 (Probability)
- MA4710 (Regression Analysis)
- HASS Social and Behavioral Sciences course (3 credits)
- Free electives (4 credits)
- Approved cognate course (3 credits)

Spring: (16 credits)
- MA3450 (Introduction to Real Analysis)
- MA4720 (Design & Analysis of Experiments)
- HASS course (3 credits)
- Free electives (4 credits)
- Approved cognate course (3 credits)

Year 4

Fall: (16 credits)
- MA4760 (Mathematical Statistics I)
- MA4790 (Predictive Modeling)
- MA4945 (History of Mathematics)
- Free electives (7 credits)

Spring: (14 credits)
- MA4770 (Mathematical Statistics II)
- MA4780 (Time Series Analysis and Forecasting)
- Free electives (8 credits)

Year 5:

Fall: MA5711, MA5731, plus two electives chosen from the following:
- MA5761 Computational Statistics
- MA5730 Nonparametric Statistics (offered in odd years)
- MA5770 Bayesian Statistics (offered in even years)

Spring: MA5712, MA5741, plus two electives chosen from the following:
- MA5702 Statistical Consulting
- MA5750 Statistical Genetics (offered in odd years)
- MA5732 Generalized Linear Models (offered in even years)
- MA5791 Categorial Data Analysis (offered in even years)
Note that this schedule assumes that students will take four graduate courses per semester during year 5. To reduce this load, students can opt to take one or two graduate courses in year 4 under the senior rule (if practical—this will work for the schedule of some students, and not for others).

12. **Library and other learning resources needed:** None; current resources are adequate.

13. **Faculty resumes:** www.math.mtu.edu/~msgocken/StatisticsCVs.

14. **Description of available/needed equipment:** The Tech standard computer lab image includes the statistical software packages R and SAS, and also standard office productivity software. This is sufficient for students in the M.S. in Statistics. No other equipment is needed.

15. **Program costs, years 1, 2, and 3:** No additional costs are expected. This degree is already being offered under the title “M.S. in Mathematical Sciences.” There is no intent to significantly increase enrollment, and therefore no increased costs are expected.

16. **Space:** No new space is needed.

17. **Policies, regulations, and rules:** Admission to the degree follows usual departmental and graduate school policies.

18. **Accreditation requirements:** Not applicable.

19. **Planned implementation date:** Fall 2018
V-J. PROPOSAL FOR A MASTER OF SCIENCE DEGREE IN APPLIED STATISTICS

The faculty members in the Department of Mathematical Sciences at Michigan Technological University seek to establish a Master of Science (M.S.) program in Applied Statistics. This degree program will provide a strong foundation in the practice of statistics, and graduates will be well prepared for the job market. The master’s degree is the entry-level degree for most positions in industry, and the proposed M.S. in Applied Statistics is envisioned as a professional degree targeting those positions. Although initially offered only on-campus, the department has plans to create an on-line option in the near future.

"Statistician" is number seven on the Bureau of Labor Statistics (BLS) list of fastest growing occupations, with a predicted increase of 33% in positions over the period 2016-2026. According to the BLS, "[s]tatisticians typically need at least a master's degree in statistics, mathematics, or another quantitative field."

The learning goals of the M.S. in Applied Statistics are the following:
1. Graduates can choose a statistical method that is appropriate for a given problem, can apply that method, and can draw appropriate conclusions.
2. Graduates can use popular statistical software to solve realistic problems.
3. Graduates can summarize and explain the results of statistical analyses orally and in writing.
4. Graduates have experience working in teams.
5. Graduates know how to work with real data. They can clean the data, deal with missing data values, and generally appreciate the complexities of handling real-world data.

The proposal has been approved by the University Senate, the Provost and Vice President for Academic Affairs on behalf of the University Administration. The University is seeking Board of Trustees approval to advance the proposal to the State Academic Affairs Officers.

RECOMMENDATION: That the Board of Trustees approves the Master of Science Degree in Applied Statistics.
The University Senate of Michigan Technological University

Proposal 14-18
(Voting Units: Academic)

"A Proposal for a New Master of Science Degree in Applied Statistics"
(Department of Mathematical Sciences)

1. **Date submitted**: October 9, 2017.

2. **Contact**: Mark S. Gockenbach, Professor and Chair, Department of Mathematical Sciences (msgocken@mtu.edu, 487-2068).

3. **Interdisciplinary support**: not applicable.

4. **General description and characteristics of program**: There is no accrediting agency for degree programs in Statistics. However, the American Statistical Association organized a working group that recently published the “Report of the ASA Workgroup on Master’s Degrees” (November 2012). This report made the following recommendations:

   (a) Graduates should have a solid foundation in statistical theory and methods.

   (b) Programming skills are critical and should be infused throughout the graduate student experience.

   (c) Communication skills are critical and should be developed and practiced throughout graduate programs.

   (d) Collaboration, teamwork, and leadership development should be part of graduate education.

   (e) Students should encounter non-routine, real problems throughout their graduate education.

   (f) Internships, co-ops or other significant immersive work experiences should be integrated into graduate education.

   (g) Programs should be encouraged to periodically survey recent graduates and employers of their recent graduates as a means of evaluating the success of their programs and to examine if other programmatic changes are warranted.

The first five recommendations imply desirable learning goals and outcomes. We have designed the proposed degree program so that students will achieve the corresponding outcomes, as follows.

(a) **Graduates can choose a statistical method that is appropriate for a given problem, can apply that method, and can draw appropriate conclusions.** All students must take a two-semester sequence on Mathematical Statistics, the basic theory of statistics. They take a survey course on traditional Statistical Methods, a cutting-edge course on Predictive Modeling, and a course on Computational Statistics. In addition, each student must take five elective courses on statistics.

---

(b) **Graduates can use popular statistical software to solve realistic problems.** Programming and the use of statistical software are taught directly in the required course on Computational Statistics (currently, the packages SAS and R are emphasized.) Most of the other required courses and electives (except the Mathematical Statistics sequence) involve significant use of statistical software for course homework and projects.

(c) **Graduates can summarize and explain the results of statistical analyses orally and in writing.** Several of the required courses and electives assign significant projects with oral or written reports. For instance, Predictive Modeling requires two in-class presentations and a written report. Computational Statistics requires an in-class presentation and a final written report. Statistical Consulting gives students experience in communicating with clients.

(d) **Graduates have experience working in teams.** One of the required courses (Predictive Modeling) assigns a team project. The elective course on Statistical Consulting also requires a team project. Many of the courses involve occasional group work.

(e) **Graduates know how to work with real data. They can clean the data, deal with missing data values, and generally appreciate the complexities of handling real-world data.** Most of the required courses and electives (again, excluding the Mathematical Statistics sequence) assign problems or projects involving real data. Several of the courses require significant projects.

Students are encouraged, but not required, to complete an internship.

5. **Rationale:** “Statistician” is number seven on the Bureau of Labor Statistics (BLS) list of fastest growing occupations, with a predicted increase of 33% in positions over the period 2016-2026. (The average growth for all occupations is predicted to be about 7%.) According to the BLS, “Statisticians typically need at least a master’s degree in statistics, mathematics, or another quantitative field. However, a bachelor’s degree is sufficient for some entry-level jobs.”

Across the United States, the number of statistics degrees awarded has been steadily increasing, as shown in the following charts:

![Statistics and Biostatistics Degrees](image)

---

As these data show, there is strong demand for advanced degrees in Statistics, both from students and the job market. The proposed M.S. in Applied Statistics aims to prepare students for the job market, where the master's degree is the most common entry-level degree.

6. Related programs:

(a) At Michigan Tech:

i. M.S. in Data Science (interdisciplinary program). This is a broader curriculum, including work in computer science and application areas in addition to statistics. Depending on the individual student's choice of electives, 10% to 50% of the coursework in the Data Science curriculum consists of statistics courses.

ii. M.S. in Statistics (new degree, also proposed Fall 2017). This curriculum is somewhat more theoretical, requiring a two-semester graduate sequence or Mathematical Statistics, as well as a graduate-level course on Linear Models. Many graduate electives in Statistics are available to both programs. The M.S. in Statistics should definitely be preferred by students considering a PhD in Statistics.

Note: The M.S. in Statistics is a new degree, but it is essentially the same as the current M.S. in Mathematics Sciences (Statistics focus area). It is being changed to a stand-alone degree to give it more visibility.

(b) At other institutions: Numerous institutions in the state and around the country offer a master's degree in Applied Statistics. Here are three examples from the state of Michigan:

i. Michigan State University, M.S. in Applied Statistics. This degree requires five courses, three graduate electives in statistics, and three additional electives in statistics or a cognate discipline. Four of the required courses correspond directly to courses we require.

ii. University of Michigan—Ann Arbor, M.S. in Applied Statistics. The prerequisite requirements are greater (a course in probability and a course in mathematical statistics) and therefore there is less overlap in degree requirements with our proposed program. There are five required courses, plus at least three electives in statistics or biostatistics and one or two electives in a cognate discipline.

iii. Oakland University, M.S. in Applied Statistics. Requirements include a two-semester sequence in Applied Linear Models, a two-semester Introduction to Mathematical Statistics, 20 credits of electives (at least 12 in Statistics or Biostatistics), and an applied statistics project.

7. Projected capacity: We are simultaneously proposing an accelerated option for Michigan Tech students to complete the B.S. in Statistics and M.S. in Statistics in five years. Combined capacity for the two programs is 10 students with no new resources, 25 students with an additional faculty position. The majority of new enrollment is expected from this degree.

8. Scheduling plans:

(a) Regular (3 semesters in residence). The degree requires ten courses (30 credits), which can be completed during three semesters in residence. A model schedule is provided below. Note that new students will be admitted only in the fall.

(b) Online/on-campus hybrid (2 semesters in residence). The required courses MA4760 and MA4770 (Mathematical Statistics I and II) will be offered in an online format starting with the 2018-19 academic year. By completing these courses online, students will be able to complete the M.S. in Applied Statistics with two semesters in residence. A model schedule is provided below.
Formal Session of the Board of Trustees - V. Action/Discussion Items

(c) Accelerated (4+1 B.S./M.S. option) The M.S. in Applied Statistics will be available in an accelerated format to Michigan Tech students with any undergraduate major other than Statistics, provided the required prerequisites are satisfied. These are the three-semester sequence in calculus (MA1160, MA2160, MA3160), linear algebra (MA2320 or MA2321 or MA2330), introductory statistics (MA2710 or MA2720 or MA3710 or MA3715), and probability (MA3720). (Note that engineering students complete all of these course, with the exception of MA3720, as part of their degree requirements.) We do not anticipate a significant enrollment from this option, but it does not cost anything to offer it. A model schedule is provided below.

9. Curriculum design: The M.S. in Applied Statistics will be offered under the Coursework option (no comprehensive examination). Here are the course requirements:

(a) Complete the following required courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA4760</td>
<td>Mathematical Statistics I</td>
<td>Fall</td>
</tr>
<tr>
<td>MA4770</td>
<td>Mathematical Statistics II</td>
<td>Spring</td>
</tr>
<tr>
<td>MA5701</td>
<td>Statistical Methods</td>
<td>Fall</td>
</tr>
<tr>
<td>MA5761</td>
<td>Computational Statistics</td>
<td>Fall</td>
</tr>
<tr>
<td>MA5790</td>
<td>Predictive Modeling</td>
<td>Fall</td>
</tr>
</tbody>
</table>

(b) Complete five electives, chosen from among the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA3740</td>
<td>Statistical Programming &amp; Analysis</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>MA4710</td>
<td>Regression Analysis</td>
<td>Fall</td>
</tr>
<tr>
<td>MA4720</td>
<td>Design &amp; Analysis of Experiments</td>
<td>Spring</td>
</tr>
<tr>
<td>MA5702</td>
<td>Statistical Consulting</td>
<td>Spring</td>
</tr>
<tr>
<td>MA5711</td>
<td>Mathematical Statistics I</td>
<td>Fall</td>
</tr>
<tr>
<td>MA5712</td>
<td>Mathematical Statistics II</td>
<td>Spring</td>
</tr>
<tr>
<td>MA5730</td>
<td>Nonparametric Statistics</td>
<td>Fall (alternate years)</td>
</tr>
<tr>
<td>MA5731</td>
<td>Linear Models</td>
<td>Fall</td>
</tr>
<tr>
<td>MA5732</td>
<td>Generalized Linear Models</td>
<td>Spring (alternate years)</td>
</tr>
<tr>
<td>MA5741</td>
<td>Multivariate Statistical Methods</td>
<td>Spring</td>
</tr>
<tr>
<td>MA5750</td>
<td>Statistical Genetics</td>
<td>Spring (alternate years)</td>
</tr>
<tr>
<td>MA5770</td>
<td>Bayesian Statistics</td>
<td>Fall (alternate years)</td>
</tr>
<tr>
<td>MA5781</td>
<td>Time Series Analysis and Forecasting</td>
<td>Spring</td>
</tr>
<tr>
<td>MA5791</td>
<td>Categorical Data Analysis</td>
<td>Spring (alternate years)</td>
</tr>
</tbody>
</table>

With prior approval of an advisor, cognate courses (at most two) may also be used as electives.

10. New course descriptions: None. The schedule of offered courses is being modified to meet the needs of the different model schedules; also, MA4760 and MA4770 will be offered online to allow for the hybrid online/on-campus option.

11. Model schedules:

Model schedule to complete degree in three semesters Students must enter with prerequisites (a three-semester sequence in calculus, linear algebra, introductory statistics, probability) already completed. Students are only admitted to begin in the fall semester.

Year 1:

Fall: MA4760, MA5701, plus an elective chosen from the following:
- MA3740 Statistical Programming & Analysis
- MA4710 Regression Analysis
- MA5730 Nonparametric Statistics (offered in odd years)
- MA5731 Linear Models
- MA5770 Bayesian Statistics (offered in even years)

Spring: MA4770, plus three electives chosen from the following:
- MA3740 Statistical Programming & Analysis
- MA4720 Design & Analysis of Experiments
- MA5702 Statistical Consulting
- MA5741 Multivariate Statistics
- MA5750 Statistical Genetics (offered in odd years)
- MA5781 Time Series Analysis & Forecasting
- MA5791 Categorical Data Analysis (offered in even years)

Year 2:

Fall: MA5761, MA5790, plus one elective chosen from the following:
- MA3740 Statistical Programming & Analysis
- MA5730 Nonparametric Statistics (offered in odd years)
- MA5731 Linear Models
- MA5770 Bayesian Statistics (offered in even years)

Model schedule for hybrid online/on-campus option: Students can take all necessary prerequisites (three semesters of calculus, linear algebra, introductory statistics, probability) at their home university, take MA4760 and MA4770 online from Michigan Tech, and then complete the degree with two semesters in residence, as follows:

Fall: MA5701, MA5761, MA5790, plus MA4710 or MA5730 or MA5770

Spring: Four electives chosen from among the following:
- MA4720 Experimental Design
- MA5702 Statistical Consulting
- MA5741 Multivariate Statistics
- MA5750 Statistical Genetics (offered in odd years)
- MA5781 Time Series Analysis & Forecasting
- MA5791 Categorical Data Analysis (offered in even years)

Model schedule for accelerated M.S.: Students must be admitted to the accelerated M.S. degree before graduation and preferably before the beginning of the senior year. The following courses, to be taken in the senior year, will count toward the M.S. degree and also toward the B.S. degree (though possibly only as free electives):

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA4710</td>
<td>Regression Analysis</td>
<td>Fall</td>
</tr>
<tr>
<td>MA4720</td>
<td>Design and Analysis of Experiments</td>
<td>Spring</td>
</tr>
</tbody>
</table>

The following model schedule completes the Mathematics major (General Mathematics concentration) and the M.S. in Applied Statistics in five years. A student from another major must complete the prerequisites, which are indicated in bold type.
Year 1

Fall: (14 credits)
- UN1015 (Composition)
- CH1150 (University Chemistry I)
- CH1151 (University Chemistry Lab I)
- MA1910 (Exploring Symmetry Groups) (free elective credit)
- MA1160 (Calculus with Technology I)

Spring: (16 credits)
- UN1025 (Global Issues)
- GE 2000 (Understanding the Earth)
- MA2160 (Calculus with Technology II)
- MA2330 (Introduction to Linear Algebra)
- General Education Critical and Creative Thinking Core course

Year 2

Fall: (16 credits)
- MA3160 (Multivariable Calculus with Technology)
- MA3210 (Introduction to Combinatorics)
- General Education Social Responsibility and Ethical Reasoning Core course
- HASS Communication/Composition course (3 credits)
- Free electives (3 credits)

Spring: (15 credits)
- MA1600 (Introduction to Scientific Simulation)
- MA2710 (Introduction to Statistical Analysis)
- MA3560 (Math Modeling with Differential Equations)
- HASS Humanities and Fine Arts course (3 credits)
- Free electives (3 credits)

Year 3

Fall: (16 credits)
- MA3310 (Introduction to Abstract Algebra)
- MA3720 (Probability) (free elective credit)
- HASS Social and Behavioral Sciences course (3 credits)
- Free electives (7 credits)

Spring: (16 credits)
- MA3450 (Introduction to Real Analysis)
- MA4410 (Complex Variables)
- HASS course (3 credits)
- Free electives (7 credits)

Year 4

Fall: (16 credits)
- MA4450 (Real Analysis)
- MA4710 (Regression Analysis)
- MA4945 (History of Mathematics)
- Free electives (7 credits)
Spring: (15 credits)
- MA4310 (Abstract Algebra)
- **MA4720 (Design & Analysis of Experiments)**
- MA4908 (Number Theory with Technology)
- Free electives (6 credits)

Year 5:

Fall: MA4760, MA5701, MA5761, MA5790
Spring: MA4770, plus three electives chosen from the following:
- MA5702 Statistical Consulting
- MA5732 Generalized Linear Models (offered in even years)
- MA5741 Multivariate Statistics
- MA5750 Statistical Genetics (offered in odd years)
- MA5781 Time Series Analysis & Forecasting
- MA5791 Categorical Data Analysis (offered in even years)

Note that this schedule assumes that students will take four courses per semester during year 5. To reduce this load, students can opt to take one or two courses in year 4 under the senior rule (if practical—this will work for the schedule of some students, and not for others).

12. **Library and other learning resources needed:** None.

13. **Faculty resumes:** www.math.mtu.edu/~msgocken/StatisticsCVs.

14. **Description of available/needed equipment:** The Tech standard computer lab image includes the statistical software packages R and SAS, and also standard office productivity software. This is sufficient for students in the M.S. in Applied Statistics. No other equipment is needed.

15. **Program costs, years 1, 2, and 3:** Projected enrollments are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th># of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-19</td>
<td>5</td>
</tr>
<tr>
<td>2019-20</td>
<td>10</td>
</tr>
<tr>
<td>2020-21</td>
<td>20</td>
</tr>
<tr>
<td>steady state</td>
<td>25</td>
</tr>
</tbody>
</table>

Program costs consist of additional sections that must be offered to accommodate the projected enrollment. Note that no new courses will be offered, but certain popular courses will be offered twice per year instead of once per year to meet the demand.

<table>
<thead>
<tr>
<th>Year</th>
<th># additional sections</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-19</td>
<td>2</td>
<td>$18,000</td>
</tr>
<tr>
<td>2019-20</td>
<td>3</td>
<td>$27,000</td>
</tr>
<tr>
<td>2020-21 and after</td>
<td>4</td>
<td>$36,000</td>
</tr>
</tbody>
</table>

16. **Space:** No new space is needed.

17. **Policies, regulations, and rules:**

(a) Admission to the degree under the regular and hybrid online/on-campus schedules follows usual departmental and graduate school policies.
(b) For the accelerated M.S., Michigan Tech students must apply before graduation and, for purposes of advising, are encouraged to apply before the beginning of the senior year. A cumulative GPA of 3.0 is required.

18. **Accreditation requirements**: not applicable.

19. **Planned implementation date**: Fall 2018
V-K. FY2018-2019 GENERAL FUND OPERATING BUDGET

The general fund budget was developed based on assumptions regarding tuition and state appropriations. However, when the State budget is approved by the Legislature, if there are changes from these assumptions, the Administration is requesting that the Board allow them the flexibility to revise the budget to reflect a change in appropriations and/or tuition cap while continuing to maintain a balanced budget.

RECOMMENDATION: That the Board of Trustees approves the FY2018-2019 General Fund Operating Budget as presented, and authorizes the Administration to revise the general fund operating budget to reflect any changes in state appropriations and/or tuition cap while maintaining a balanced budget and informing the Board Audit and Finance Committee of any such changes that may be necessary.
V-L. APPROVAL OF STRATEGIC PLAN

On May 1, 2015, the Board of Trustees adopted the Michigan Tech Strategic Plan. Over the past several months the Strategic Plan has been under review by the administration, the deans, and the campus community, and based on this input a revised plan is being brought forward for approval.

RECOMMENDATION: That the Board of Trustees adopts the revised Michigan Tech Strategic Plan as presented herein.
Strategic Plan

We prepare students to create the future.

Vision: Michigan Tech is a globally recognized technological university that educates students, advances knowledge, and innovates to improve the quality of life and to promote mutual respect and equity for all people within the state, the nation, and the global community.

Mission: Create solutions for society’s challenges by delivering action-based undergraduate and graduate education, discovering new knowledge through research, and launching new technologies through innovation.

--------------------

Goals: Accomplish our mission through interdisciplinary education, research, and engagement with partners to advance sustainable economic prosperity, health and safety, ethical conduct, and responsible use of resources. Our specific focus is on education, scholarship, and people; this requires sufficient revenues from state, federal, corporate, and philanthropic sources.

Education: Provide a distinctive and rigorous action-based learning experience grounded in science, engineering, technology, business, sustainability, and an understanding of the social and cultural contexts of our contemporary world.

Student Learning: Integrate instruction, research, and innovation to achieve the student learning goals for undergraduate and graduate programs.

- Provide research, service-learning, project-based, entrepreneurial, and international opportunities for students.
- Promote mutual appreciation of, and collaborative opportunities across, academic disciplines.
- Continually assess, review, and improve programs and develop new offerings in emerging disciplinary and interdisciplinary areas.

Transformative Education: Provide a technologically-rich education grounded in a residential and experiential learning environment.

- Encourage and support high quality, innovative, and effective instruction and experiences to enhance student learning.
- Provide student mentoring, career and professional development, and leadership opportunities.
- Enhance student learning and experiences to promote long-term physical and mental health.
- Foster mutual respect in personal and professional interactions.
- Promote social and civic responsibility as well as ethical conduct.

Educational Programs: Expand programs in response to social and economic needs and challenges.

- Develop and enhance pathways to completion of undergraduate and graduate programs.
- Increase both scholarly productivity and number of doctoral and master’s degrees awarded.
- Improve access via online and other non-traditional delivery of educational programs.
- Promote lifelong learning by providing opportunities for continuing education.
- Encourage understanding of public policy issues.
Scholarship: Enhance research, scholarship, entrepreneurship, innovation, and creative activities that promote sustainable economic prosperity, health and safety, ethical conduct, and responsible use of resources.

Scholarly Activity: Grow research, scholarship, and creativity.

- Increase external support for research, scholarly, and creative activities, including leadership of interdisciplinary multi-institutional collaborations.
- Promote, recognize, and reward scholarly excellence and accomplishment.
- Encourage and support entrepreneurial and interdisciplinary activities.
- Promote sharing and growth of research facilities, services, and infrastructure.

Economic and Social Development: Promote innovation and development for economic and social progress.

- Advance interdisciplinary research to address problems of social significance.
- Create a culture of responsible innovation and entrepreneurship.
- Support workforce development and social engagement through collaborative outreach and technology transfer.
- Encourage and support technology commercialization and start-up businesses.
- Expand international and cross-cultural engagement with universities, industries, non-governmental organizations, and governments.
- Foster social development and economic growth of our state and the local community.

People: Foster and support an exceptional and diverse community of students, faculty, and staff.

Community: Cultivate an exceptional academic and professional community.

- Recruit, support, recognize, and graduate bright, motivated, and adventurous students.
- Attract, retain, and support faculty and staff and provide recognition, rewards, and competitive compensation.
- Collaboratively develop opportunities for partner engagement.
- Provide professional development and leadership opportunities for students, tenured, tenure-track and non-tenure-track faculty, and staff.
- Optimize numbers of tenured, tenure-track, and non-tenure-track faculty and staff to foster growth of University programs.

Quality of Life: Ensure a supportive environment for all members of the University community.

- Promote equity, inclusiveness, and collegiality through openness, engagement, mutual respect, and understanding of diverse perspectives.
- Increase diversity, and promote success of all students, faculty, and staff.
- Provide a rich cultural environment and a welcoming campus.
- Support the health and well-being of all members of the University community.
- Engage with external partners to enhance the quality of life in our local community.

Infrastructure: Provide exceptional services and infrastructure.

- Promote a university-wide culture of safety, responsiveness, effectiveness, and efficiency.
- Provide exceptional technology, library, classroom, and laboratory facilities that support education, research, and innovation.
- Create and maintain an aesthetic, sustainable, and effective infrastructure.
**V-M. ELECTION OF CHAIR AND VICE CHAIR**

The Bylaws of the Board of Trustees record that at the last meeting of the fiscal year, the Board shall elect a chair to take office at the first meeting in the following fiscal year. It further states that the Board shall also elect a vice chair to preside in the absence of the chair.

**RECOMMENDATION:** That the Board of Trustees elects Brenda Ryan as chair for the fiscal year 2018-2019; and that further, the Board elects Bill Johnson as vice chair for the same period.
V-N. REVISION TO BOARD POLICY 6.1. FACULTY DEFINITIONS

It is being recommended that this policy be revised to redefine the ranks associated with affiliated and adjunct faculty at Michigan Technological University.

RECOMMENDATION: That the Board of Trustees amends Board Policy 6.1. Faculty Definitions as presented.
Revised Items as follows:

6.1 FACULTY DEFINITIONS

The faculty comprises two groups: "tenured and tenure-track faculty" and "non-tenure-track faculty." The "tenured and tenure-track faculty" comprises individuals holding the rank of assistant professor, associate professor, or professor. The "non-tenure-track faculty" comprises individuals holding the rank of instructor, lecturer, senior lecturer, principal lecturer, professor of practice, visiting (assistant/associate/professor) faculty, adjunct (assistant/associate/professor, associate professor, assistant professor, instructor, senior lecturer, principal lecturer, professor of practice) faculty, affiliated (professor, associate professor, assistant professor, instructor, lecturer, senior lecturer, principal lecturer, professor of practice, research assistant/associate/professor, emeritus) faculty, research faculty (assistant/associate/professor) faculty, ROTC faculty appointments and, or emeritus faculty.

The amended policy shall read as follows:

The faculty comprises two groups: "tenured and tenure-track faculty" and "non-tenure-track faculty." The "tenured and tenure-track faculty" comprises individuals holding the rank of assistant professor, associate professor, or professor. The "non-tenure-track faculty" comprises individuals holding the rank of instructor, lecturer, senior lecturer, principal lecturer, professor of practice, visiting (assistant/associate/professor) faculty, adjunct (professor, associate professor, assistant professor, instructor, lecturer, senior lecturer, principal lecturer, professor of practice) faculty, affiliated (professor, associate professor, assistant professor, instructor, lecturer, senior lecturer, principal lecturer, professor of practice, research assistant/associate/professor, emeritus professor) faculty, research (assistant/associate/professor) faculty, ROTC faculty, or emeritus faculty.

"Learned professions" shall mean those professions (or members thereof) skilled in a calling or vocation requiring advanced knowledge as evidenced by a specific degree from a recognized College or University.

"Engaged in teaching" shall be interpreted to mean that the person is to teach during each academic semester of the normal academic year.

"Appointed by the Dean of the Graduate School" shall imply appointment to the Graduate Faculty as defined by the Graduate Council. Such appointment is limited to
Those with advanced degrees or equivalent experience, as well as interest and experience in research or teaching on the graduate level.

"Equivalent experience" shall be determined by the President of the University.

The Faculty of the University

The President shall hire the faculty of the University which shall consist of the Undergraduate and Graduate Faculties.

Each faculty member shall qualify for one or more of the following defined faculties.

1. The Undergraduate Faculty consists of the members of the learned professions who are engaged in teaching for a degree in one of the learned professions and/or direct supervision thereof.

2. The Graduate Faculty consists of members of the faculty who have been appointed by the Dean of the Graduate School to be members of the Graduate Faculty.

Administrative officials of the University and members of staff, may be accorded membership of the faculties and such membership shall be within a specific department or school of the University.

This policy shall be administered in accordance with procedures recommended by the Senate and approved by the Provost and Vice President for Academic Affairs.

HISTORY

06/07/68
01/28/82
03/21/86 deleted “rank” and “member” definition and Research Faculty
11/23/86 Changed Dean of Research and the Graduate School title
03/23/90
11/17/95 Clarify faculty ranks
08/03/2000 Changed Executive Vice President and Provost title to Provost and Senior Vice President for Academic and Student Affairs
12/15/2000 Changed quarter to semester
07/15/2010 Was previously Policy 16.1. Renumbered, Vice Presidential title corrected, various faculty designations corrected to correlate with present practice.
05/04/2018 Revised to redefine the ranks associated with affiliated and adjunct faculty at Michigan Tech.
V-O. REVISION TO BOARD POLICY 6.4. ACADEMIC TENURE AND PROMOTION

It is being recommended that this policy be revised to allow for the University Senate and Administration to collaboratively update procedures in the future. The policy change also includes minor editorial changes and adds phrases intended to make the meanings of the relevant sections of the Board of Trustees Policy clear.

RECOMMENDATION: That the Board of Trustees amends Board Policy 6.4. Academic Tenure and Promotion as presented.
Revised Items as follows:

6.4. ACADEMIC TENURE AND PROMOTION

Academic Tenure

Statement of Intent

It is the intention of the Board of Trustees to adhere to these policies and procedures insofar as they are not inconsistent with law. Under its legal obligations as the responsible governing board of the University, the Board reserves the right to suspend these policies or implementing procedures or parts thereof, to request the faculty to review or reconsider them, or to deviate from them if conditions beyond its control, such as abrupt declines in enrollment, serious loss of income, or conditions that result in curtailment or abandonment of programs or activities, make it necessary to do so. Only the Board of Trustees has the authority to grant tenure at Michigan Technological University or to modify Board of Trustees Policy.

Introduction

For the purposes of the Michigan Technological University Policy on Academic Tenure and Promotion, the academic faculty is comprised of those individuals holding one of the ranks of assistant professor, associate professor or professor; and who also hold appointments in the University units having a reporting relationship to the Provost (including the Provost); and also whose appointments in the University are three quarters time or more of full-time provided the applicable letter of appointment specifies the position as tenure track.

Procedures for Tenure, Promotion, and Reappointment Recommendations

The procedures for implementation of this Tenure and Promotion Policy are the Tenure, Promotion, and Reappointment Procedures. No other procedures shall exist to implement this policy, except those amendments to the procedures adopted by concurrence of the Senate, the Provost, and the University President. Only the Board of Trustees has the authority to grant tenure at Michigan Technological University.

Interpretation

In case of any question in the interpretation of this tenure and promotion policy or in the solution of any tenure problem arising from a situation not specifically covered herein or
Amendments to the Tenure and Promotion Policy may be initiated by any member of the faculty, including administrators holding faculty appointments. All such proposed amendments shall be submitted in writing to the President of the University Senate. The proposed amendment(s) will be forwarded to the Academic and Instructional Policy Committee of the University Senate for review and/or revision. The Academic and Instructional Policy Committee will provide a copy of the proposed amendments to the Committee on Academic Tenure, Promotion, and Reappointment. The Academic and Instruction Policy Committee will submit its recommendations to the University Senate.

Proposed Revisions to the Tenure, Promotion, and Reappointment Policy must be in the form of a Senate proposal. Adoption of any revision proposed to the Senate shall require approval by the University Senate, approval by a majority of the tenured and tenure-track faculty voting in a university-wide referendum, such vote to be conducted by the University Senate, followed by the approval of the Provost and University President. The President will then forward the recommendation to the Board of Trustees for final approval. In every case, the final decision rests with the Board of Trustees.

The amended policy shall read as follows:

6.4. ACADEMIC TENURE AND PROMOTION

Academic Tenure

Statement of Intent

It is the intention of the Board of Trustees to adhere to these policies and procedures insofar as they are consistent with law. Under its legal obligations as the responsible governing board of the University, the Board reserves the right to suspend these policies or implementing procedures or parts thereof, to request the faculty to review or reconsider them, or to deviate from them if conditions beyond its control, such as abrupt declines in enrollment, serious loss of income, or conditions that result in curtailment or abandonment of programs or activities, make it necessary to do so. Only the Board of Trustees has the authority to grant tenure at Michigan Technological University or to modify Board of Trustees Policy.
Preamble

Tenure is signified by an appointment for an indefinite continuing period subject to the rules set forth in this tenure policy. Tenure entails explicit responsibilities for the administrative officers and for the academic faculty. The administrative officers assure security of appointment to tenured faculty members; tenured faculty members assure competent service, loyalty to and cooperation with the University. Tenure shall not protect a person from loss of faculty appointment for causes such as incompetence, negligence, serious misuse of academic prerogatives, persistent and willful failure to follow established institutional procedures, gross personal misconduct or conscious participation in conspiracy against the Government.

Introduction

For the purposes of the Michigan Technological University Policy on Academic Tenure and Promotion, the academic faculty is composed of those individuals holding one of the ranks of assistant professor, associate professor or professor; and who also hold appointments in the University units having a reporting relationship to the Provost (including the Provost); and also whose appointments in the University are three quarters time or more of full-time provided the applicable letter of appointment specifies the position as tenure track.

The ranks of professor, associate professor and assistant professor are the regular tenure-accumulating faculty ranks; service in these ranks is counted towards the acquisition of tenure, except as specifically noted herein.

The ranks of lecturer and instructor, as well as all positions denominated as adjunct, visiting, research, or part-time, are non-tenured positions; such non-tenured appointments are normally considered annual appointments and viewed as exceptional, being made in accordance with established procedures prepared by the faculty of the school or college concerned, the special condition of which must be explicitly stated in advance of each appointment. Neither time of service in any of these ranks, nor time of service in any rank at another institution, counts toward the acquisition of tenure at Michigan Technological University.

Unless extended according to the provisions stated in this policy, the tenure probationary period for faculty initially appointed at the rank of assistant professor is six years; for faculty initially appointed at the rank of associate professor it is four years; and for faculty initially appointed at the rank of professor it is two years. Unless notice that tenure will not be granted is given prior May 31, of the final year of the tenure probationary period, tenure at Michigan Technological University is acquired automatically when full time paid regular faculty service at one of these ranks extends beyond the tenure probationary period for that rank. When a faculty member is notified, prior to May 31, of the final year of the tenure probationary period, that tenure will not be granted, the faculty member shall receive a one-year terminal appointment.
For the purposes of Tenure, Promotion, and Reappointment, periods of continuous appointment as a tenure-track faculty member are included in the total period of service for the tenure probationary period. This will generally include unpaid periods such as summer semester and certain leaves of absence within otherwise continuous employment and service. The tenure probationary period for faculty whose initial appointment commences on or after November 1 is considered to have begun service with the start of the subsequent academic year, unless it is specified otherwise in the applicable letter of appointment. A tenure-track faculty member joining the University prior to November 1 is deemed to have begun service at the beginning of the same academic year. In no case will the probationary period start later than the beginning of the subsequent academic year.

Exceptional circumstances may sometimes effect a prolonged disruption of professional responsibilities during the tenure probationary period, requiring extensive sick leave, unpaid leave, or a substantial formal reduction of professional responsibilities. A faculty member encountering such circumstances may make written request to the Provost for a one year extension of the tenure probationary period. This written request should be made during or immediately following the period of exceptional circumstances, and in no case after November 15 of the final year of the tenure probationary period.

It should be accompanied by recommendations from the appropriate department chair and the dean of the college, or from the dean of the school. The request should clearly demonstrate that both of the following conditions are satisfied:

1. The exceptional circumstances requiring the extension were such that normal conduct of professional responsibilities could not reasonably be expected.

2. Exclusive of the period of exceptional circumstances, the faculty member had made good progress toward achieving tenure.

Under this policy, an individual's tenure probationary period at Michigan Technological University may be extended by one year, or in the case of requests based on the birth or legal adoption of a child, not more than two years, total, for each child. Approval for such extensions will be at the sole discretion of the Provost.

These standard tenure policies are designed to allow untenured faculty sufficient time to develop eligibility for tenure, but granting of tenure after shorter periods of service at this University is not precluded.
Tenure Appointments

Assistant Professor

The initial appointment to the rank of assistant professor shall be for a term of two years. Thereafter, term appointments shall be for not more than two years each. If reappointed after six years of service, an assistant professor shall have tenure unless specifically notified by the department chair (or dean where there is no department chair) prior to May 31 at the end of the sixth year that the seventh year is to be the terminal year. Granting of tenure to a faculty member with the rank of Assistant Professor level carries with it promotion to the rank of Associate Professor.

Associate Professor

An assistant professor at Michigan Technological University who is promoted to the rank of associate professor may be granted tenure at the time of promotion. If reappointed after six years of service at this University an associate professor shall have tenure unless specifically notified by the department chair (or dean where there is no department chair) prior to May 31 at the end of the sixth year that the seventh year is to be the terminal year.

The initial appointment to the rank of associate professor for a person who has not served previously at Michigan Technological University shall be for two years. Thereafter, term appointments shall be for not more than two years each. If reappointed after four years of service, persons initially appointed as associate professors shall have tenure unless specifically notified by the department chair (or dean where there is no department chair) prior to May 31 at the end of the fourth year that the fifth year is to be the terminal year.

Professor

An associate professor at Michigan Technological University who is promoted to the rank of professor shall have tenure from the date of that promotion. The initial appointment to the rank of professor of a person who has not served previously at Michigan Technological University shall be for two years. Upon reappointment, persons holding the rank of professor shall have tenure unless specifically notified by the department chair (or dean where there is no department chair) prior to May 31 at the end of the second year that the third year shall be the terminal year. Granting of tenure by the Board of Control at the time of initial appointment is not precluded.

Administrative Officers

Appointments to administrative positions do not carry tenure and administrative officers continue in their posts as determined by the President and the Board of Trustees. Those administrative officers holding an academic rank are subject to the provisions applicable to that rank only insofar as their non-administrative faculty status is
concerned. Their appointment to academic rank and their faculty tenure are subject to the same rules as those for all other faculty members.

**Academic Promotion**

Academic promotion refers to an elevation in academic rank, either from Assistant Professor to Associate Professor, or from Associate Professor to Professor. Academic promotion may be conferred only by the Board of Trustees. Academic promotion may or may not be simultaneous with the granting of tenure.

It is the promotion policy of Michigan Technological University to maintain uniformity in promotion criteria and consistency in their application to all members of the instructional faculty. However, differences in needs and objectives of the various departments/schools may necessitate variations in promotion criteria among the instructional units. Promotion of faculty will be based on individual merit.

The procedures for Academic Promotion are defined in the Tenure, Promotion, and Reappointment Procedures.

**Procedures for Tenure, Promotion, and Reappointment Recommendations**

The procedures for implementation of this Tenure and Promotion Policy are the Tenure, Promotion, and Reappointment Procedures. No other procedures shall exist to implement this policy, except those amendments to the procedures adopted by concurrence of the Senate, the Provost, and the University President.

**Right to Appeal**

A faculty member may appeal negative decisions regarding tenure, promotion, and reappointment. The only grounds for such appeals are the failure of a recommending party or parties to follow the Tenure and Promotion Policy, the Faculty Staffing Policy and/or the Tenure, Promotion, and Reappointment Procedures. Procedures for filing an appeal are defined in the Tenure, Promotion, and Reappointment Procedures. Appeals must be filed with the Committee on Academic Tenure, Promotion, and Reappointment within 30 calendar days after notification by the Provost of a negative recommendation to the President. No other route of appeal is permitted.

**Dismissal for Cause**

Any faculty member may be dismissed at any time for cause, as stated in the Preamble. Either the President or the faculty member concerned has the option of submitting a written request to the Committee on Academic Tenure, Promotion, and Reappointment to conduct a hearing of the case and make suitable recommendations.

**Dismissal for Reasons other than Cause**
Dismissal or other removal of tenured faculty for reasons other than cause shall be in accord with Board of Trustees Policy 11.17.

Committee on Academic Tenure, Promotion, and Reappointment

There shall be a standing joint committee of the academic faculty and administration, known as the Committee on Academic Tenure, Promotion, and Reappointment. This Committee functions independent of the University Senate and the administration of the University. Appeals of negative recommendations on tenure, promotion, or reappointment of tenure-track faculty, and negative recommendations on promotion of tenured faculty, are under the jurisdiction of the Committee. The composition and responsibilities of the Committee are defined in the Tenure, Promotion, and Reappointment Procedures.

Interpretation

In case of any question in the interpretation of this tenure and promotion policy or in the solution of any tenure problem arising from a situation not specifically covered herein or in the Tenure, Promotion, and Reappointment Procedures, the matter shall be referred to the Committee on Academic Tenure, Promotion, and Reappointment. This Committee, after a thorough study, shall transmit its recommendation to the President of the University through the Provost. The final decision regarding any interpretation of Board of Trustees Policy rests with the Board of Trustees.

Amendments

Amendments to the Tenure and Promotion Policy may be initiated by any member of the faculty, including administrators holding faculty appointments. All such proposed amendments shall be submitted in writing to the President of the University Senate. The proposed amendment(s) will be forwarded to the Academic and Instructional Policy Committee of the University Senate for review and/or revision. The Academic and Instructional Policy Committee will provide a copy of the proposed amendments to the Committee on Academic Tenure, Promotion, and Reappointment. The Academic and Instructional Policy Committee will submit its recommendations to the University Senate.

Proposed revisions to the Tenure, Promotion, and Reappointment Policy must be in the form of a Senate proposal. Adoption of any revision proposed to the Senate shall require approval by the University Senate, approval by a majority of the tenured and tenure-track faculty voting in a university-wide referendum, such vote to be conducted by the University Senate, followed by the approval of the Provost and University President. The President will then forward the recommendation to the Board of Trustees for final approval. In every case, the final decision rests with the Board of Trustees.
HISTORY
06/12/57
05/20/77
06/07/68 Interpretation: appointment includes initial and reappointment
01/28/82
11/19/82
07/19/91 Added exceptional circumstances provision
05/07/2004 Rescinded 16.3. Academic Promotion and amended 16.4
Academic Tenure to include promotion
12/12/2008 Revised extension of the probation period for an additional year as
a result of child being born or legally adopted during the probation
period.
07/15/2010 Was previously Policy 16.4. Renumbered and internal reference to
prior Policy changes to 11.7.
05/04/2018 Revised wording to allow for the University Senate and
Administration to collaboratively update procedures in the future
and also includes minor editorial changes.
V.P. BOARD POLICY 15.3. RESEARCH DATA PRINCIPLES

Background
Over the past 10+ years, there has been a movement to require Federal agencies and all others who receive federal funding to be more accountable and transparent to the public for the use of their tax dollars, requiring more standardized information and increased access to the fiscal data and scientific research results. As an educational institution conducting research, it is important for Michigan Tech to assert its position relative to the sharing of its research results.

To provide some context, the need to increase public access to research results was promulgated by the following events or actions:

  o It was an effort to invest in innovation through research and development, and to improve the competitiveness of this country. This Act required the White House’s Office of Science and Technology Policy to form a committee to coordinate federal programs and activities in support of STEM education, and included specific legislation for NSF to implement new requirements including the sharing of final project reports and citations of published research documents with the public. NSF responded with an additional final report requirement called the “Project Outcomes Report” for awards made on or after 1/4/2010 to be written for public understanding and consumption, deposited and made available through its website.

- **2/2013-Office of Science and Technology Policy (OSTP) Memo**
  o Issued a federal mandate relative to increasing access to the results (both data and publications) of federally funded scientific research. These efforts were intended to enhance the visibility and reproducibility of the research. Each Federal agency with over $100M in research and development expenditures was required to prepare its data management plan (DMP) on how it would make the results of its funded research freely available to the public, and generally within one year of publication. Agency specific requirements related to processes and repositories have been developed in response to this mandate.

The policy reads as follows:

The University shall ensure that all research data and results are made accessible to the public to the broadest extent possible in compliance with all policy, contractual, legal and regulatory obligations. The Vice President for Research will develop and promulgate policies and procedures consistent with and to be used in the administration of this Board of Trustees Policy.

**RECOMMENDATION:** That the Board of Trustees approve the creation of Board Policy 15.3. Research Data Principles as presented.
V-Q. ORDINANCE NO. 4 – TAMPERING WITH SAFETY OR SECURITY DEVICES

It is being recommended that this Ordinance be adopted to prohibit the unauthorized removal, disabling, damaging, tampering with or impairing the functionality of any University owned surveillance camera, monitoring, recording, communication warning, safety security or fire related device and provide fines and penalties for its violation.

RECOMMENDATION: That the Board of Trustees approve Ordinance No. 4 as presented. Upon approval of this Ordinance, it will take immediate effect.

The new Ordinance No. 4 reads as follows:

ORDINANCE NO. 4 – TAMPERING WITH SAFETY OR SECURITY DEVICES

A REGULATION AND ORDINANCE TO PROHIBIT THE UNAUTHORIZED REMOVAL, DISABLING, DAMAGING, TAMPERING WITH OR IMPAIRING THE FUNCTIONALITY OF ANY UNIVERSITY OWNED SURVEILLANCE CAMERA, MONITORING, RECORDING, COMMUNICATION, WARNING, SAFETY, SECURITY OR FIRE RELATED DEVICE AND PROVIDING FINES AND PENALTIES FOR ITS VIOLATION.

WHEREAS, Article VIII, Section 6 of the Michigan Constitution of 1963 provides that the Board of Control of Michigan Technological University shall be a body corporate and vests therein the general supervision of said University; and

WHEREAS, Public Act number 70 of 1885 as amended provides that the Board of Control shall have authority to make and prescribe reasonable rules and regulations for the care, preservation, and protection of buildings and property dedicated and appropriated to public use, over which the Board of Control has jurisdiction or power of control and the conduct of those coming upon the property thereof, which may be necessary for the maintenance of good order and the protection of such property, which rules and regulations become ordinances upon publication and posting; and

WHEREAS, pursuant to the above-designated authority, and in discharge of the responsibility imposed thereby, the Board of Control of Michigan Technological University deems it necessary to adopt the following for the care, preservation, protection and government of University property and persons thereon.

NOW, THEREFORE, the Board of Control (Board of Trustees) of Michigan Technological University hereby adopts these rules and regulations which shall become a University ordinance:
1. No person(s), other than an authorized Michigan Technological University employee or hired contractor in the performance of their University authorized installation, monitoring, repair, operation or replacement activity shall intentionally or knowingly remove, damage, disable, obscure, tamper with, alter the direction of, or in any way disrupt, block or impair the normal operation or functionality of:

   a) Any surveillance camera, security, safety or performance monitoring, recording, communication or alarm device, or related equipment,
   b) Any fire, smoke or other alarm or alarm system or related equipment,
   c) Any fire extinguisher or fire suppression device or related equipment,
   d) Any security, lighting or related equipment,
   e) Any lock or other entrance or exit control or monitoring device,

or attempt to do or assist in doing any of the above without prior written authorization from the Michigan Technological University Department of Public Safety and Police Services.

Any person violating any provision of this ordinance shall be guilty of a misdemeanor punishable as provided by law.

This ordinance shall become effective upon its adoption, posting on University property and publication in the Daily Mining Gazette. Copies shall be made available at the Department of Public Safety and Police Services and the University Website and at the office of the Secretary of the Board of Trustees of Michigan Technological University.
VI. REPORTS

A. Undergraduate Student Government Report
   – Max Sexauer, President
B. Graduate Student Government Report
   – Hossein Tavakoli and Apurva Baruah, President
C. University Senate Report – Dr. Martin Thompson, President
USG Update

May 4, 2018
Max Sexauer, USG President
Agenda

- USG Mission Statement
- New USG Body
- USG Events
- Student Organization Funding
- Special Note - Sustainability Resolution
- Looking to the Future
Mission Statement

- Condensed from the “Purpose” section of our Constitution
- Reads:
  - “The Undergraduate Student Government at Michigan Technological University aims to improve the quality of University life by advocating for student interests, promoting a learning environment, and positive relationships among students and faculty within the community.”
New USG Body

- Transition took place at the end of March
- Executive Board (Right)
- General Body (Next Slide)
New USG Body
USG Events

- Dumb Debate Night
USG Events

- USG Town Hall
Student Organization Funding

- Annual Student Organizational Funding Process Concluded
  - March 28th
  - Total Allocated to RSO: $379,886
  - Total Allocated to SBG & Traditions: $323,900

- Current Funding:
  - $226,771 Regular Disbursements
  - $27,000 Extra Funding
Sustainability Resolution

● 3 Pillars

○ Environmental

○ Social

○ Economic

SIGN UP HERE
A Resolution for Action and Engagement in Sustainable Practice
at Michigan Technological University
Looking to the Future

● Goals for the 18-19 School Year
  ○ Work more closely with other Governing Bodies on Campus
    ■ Work to rebrand Student Commission
  ○ Empower our internal committees
  ○ Establish easier ways to connect with Students on Campus
    ■ Both for USG and Administration’s Benefit
Questions?
Graduate Student Government of Michigan Tech

Presented by
Hossein Tavakoli and Apurva Baruah

May 4th, 2018

Board of Trustees
Michigan Technological University
The Proposed Prosper Act:

If this legislation is passed it is expected to have the following impacts on grad students:

- Eliminates Grad Plus loans and Perkins loans
- Eliminates Public Service loan Forgiveness
- Caps student loans at $28,500 annually and $150,000 in total
- Eliminates Subsidized Stafford loans
- Eliminates federal work study for graduate students
- Preserves the disparity between student loan interest rates that mandates graduate-professional students pay the highest interest rates of all borrowers
Academic Events in Review

❖ Poster Session during Alumni Reunion

❖ Health Insurance Open Forum

❖ Virtual Career Fair

❖ Academic Seminars

❖ Three Minute Thesis Competition

❖ Graduate Research Colloquium

❖ Professional Development Workshop

❖ Transportation Planning

❖ Alumni Engagement
Social Events in Review

❖ Summer Softball League
❖ Orientation and End-of-The-Year Events
❖ PhD Comics
❖ Bowling Night
❖ Laser Tag
❖ 50th Year Anniversary
Sponsored Activities

- Travel Grant Program
- Outstanding Merit Awards
- Cultural Events
Review of Year

- New Logo and Website
- Cultural Event Fund Committee
- Freezer Program
- Sustainability
- Emergency Fund
- Diversity
- Presidential Search Committee
- Respond to Taxable Tuition Waivers
- Accessibility
- GSG internal evaluations
- Co-tenant rental agreement
- Printer in 8th floor of Dow
2018-19 Team

President: Apurva Baruah (PhD, ME-EM)

Vice- President: Prathamesh Deshpande (PhD, ME-EM)

Secretary: Jamie Berger (PhD, Computer Science)

Treasurer: Sharath Kumar Ankathy (PhD, Chemical Engineering)

Social chair: Ninad Mohale (PhD, Material Science)

Academic chair: Jacob Blazejewski (PhD, Mathematics)

Public Relations chair: Prasad Soman (PhD, Material Science)
Vision & Goals

Vision- Serving our diverse group of students and MTU community to find the support, governance systems, and encouragement to thrive personally, academically, and professionally.
## Goals and Action Objectives

### Campus Resources

<table>
<thead>
<tr>
<th>Goals</th>
<th>Develop campus resources to facilitate our community in their success – academic, personal and professional.</th>
</tr>
</thead>
</table>
| Areas of Interest | • Transportation  
• Housing  
• Healthcare & Insurance  
• Research Incentivization  
• Emergency Loans |
| Objectives For 2018-2019 | • Equitable & sustainable transportation service  
• Housing Alternatives  
• Inexpensive, effective student insurance  
• Expand conference grant support  
• Refine student emergency loan program |
## Goals and Action Objectives

### Social

**Goals**
Ensure a safe, inclusive environment and to ensure a good quality of life conducive for all-round development of our diverse community.

### Areas of Interest
- Diversity and Inclusion
- Cross-cultural communication
- Inter-department student interaction
- Encouraging a work-life balance

### Objectives For 2018-2019
- Support diversity related students issues.
  - Promote dedicated staff for handling incidents.
- Diversity/cultural orientation for TAs.
- Diversity Dialogues & other similar events
- Mentorship programs between undergrad-grad and grad-alumni
Goals and Action Objectives

Environmental and Sustainability

<table>
<thead>
<tr>
<th>Goals</th>
<th>Areas of Interest</th>
<th>Objectives For 2018-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sustainability University Strategic Plan</td>
<td>• Sustainability Resolution</td>
<td>• Establishing Office of Sustainability</td>
</tr>
<tr>
<td>• Public Engagement</td>
<td>• Sustainability administrative structure</td>
<td>• Promote sustainable habits</td>
</tr>
<tr>
<td>• Zero Waste</td>
<td>• Sustainability culture</td>
<td>• Facilitate sustainability programs</td>
</tr>
<tr>
<td>• 100% Renewable Energy</td>
<td>• Food waste</td>
<td>• Composting – Investigating Several Alternatives</td>
</tr>
</tbody>
</table>

For 2018-2019

- Establishing Office of Sustainability
- Promote sustainable habits
- Facilitate sustainability programs
- Composting – Investigating Several Alternatives
University Senate Report

Presented to the Board of Trustees
May 4, 2018

Marty Thompson, President
University Senate
University Senate Vision Statement

The University Senate is a respected, relevant, and independent representative body that leads by promoting faculty and staff interests in the shared governance of the University. Its actions support the University mission and the day-to-day professional activities of faculty and staff. The University Senate is an active partner in University decisions concerning academic and administrative affairs.
Strategies to support our University Senate Vision

• Promote rigorous and relevant curricula with attractive and innovative degree programs that best serve students and society.

• Promote ethical behavior, professional discourse, and mutual respect among all members of the University community.

• Ensure that academic freedom is encouraged and protected in all forms.

• Provide a source of advice and support for the University administration and Board of Trustees by making recommendations regarding faculty and professional staff issues, University finances, and the workplace environment.

• Provide recommendations for programs that provide opportunities for personal and professional growth for members of the campus community.

• Serve as the legislative authority for academic policies and educational guidelines that encourage and ensure student learning.
Promote rigorous and relevant curricula with attractive and innovative degree programs that best serve students and society.

**S.P.5-18**: Role of Innovation and Commercialization to the Faculty Handbook

**S.P.10-18**: Minor in Cybersecurity

**S.P.11-18**: Proposal to Shelve the Interdisciplinary Graduate International Profile Certificate

**S.P.12-18**: PhD in Statistics Dept of Mathematical Sciences

**S.P.13-18**: Master of Science degree in Statistics Dept of Mathematical Sciences

**S.P.14-18**: Master of Science degree in Applied Statistics Dept of Mathematical Sciences

All of the listed proposals have been approved by the senate since the February meeting.
Promote ethical behavior, professional discourse, and mutual respect among all members of the University community.

**Conflict of Interest Committee:** guidance has been helpful as measured by so few challenging cases.

**Academic Integrity Committee:** ~70 cases this past year.

**Sense of the Senate (Fall 2018):** Inclusiveness
Ensure that academic freedom is encouraged and protected in all forms.

**S.P.8-18:** Sabbatical Leave for Lecturer Track Faculty – *In Discussion*

**Sense of the Senate (Fall 2018):** Inclusiveness and classroom conduct
Provide a source of advice and support for the University administration and Board of Trustees by making recommendations regarding faculty and professional staff issues, University finances, and the workplace environment.

S.P.09-17: Proposed Revisions to Board of Trustees Policy 6.4
S.P.23-17: Proposed Changes to Faculty Handbook Section 1.5.5 Non-Tenure Track Academic Rank Definitions

Finance Forum
Benefits Forum

FIPC: The Impact of the Enrollment Projections for the 2045 Portrait.
– In Discussion
Provide recommendations for programs that provide opportunities for personal and professional growth for members of the campus community.

Faculty Distinguished Service Award

Evaluation process (teaching): Ad hoc committee

S.P.5-18: Proposed Addition of a Section of the Role of Innovation and Commercialization to the Faculty Handbook
Serve as the legislative authority for academic policies and educational guidelines that encourage and ensure student learning.

**S.P.25-18: Establish a Policy on the Quality of Online Courses – In Discussion**

**Assessment Council**

**Role of Library in Academic Programs:** Ad hoc committee

**Ad Hoc Committee On High Cost Of Textbooks & Publications**

**Encouraging Endowment To Concentrate On Graduate Student Support. – In Discussion**
To live is to change, and to be perfect is to have changed often.

-Blessed John Henry Cardinal Newman
VII. INFORMATIONAL ITEMS

A. Analysis of Investments
B. University Issued Bond Balances
C. Research and Sponsored Programs Report
D. Advancement and Alumni Engagement Report
E. Recent Media Coverage
F. Employee Safety Statistics
VII-A. ANALYSIS OF INVESTMENTS

Attached are analyses of investments as of June 30, 2017 to March 31, 2018.
### MICHIGAN TECH UNIVERSITY
### INVESTMENT PORTFOLIO
### JUNE 30, 2017 THROUGH MARCH 31, 2018

<table>
<thead>
<tr>
<th>Fund</th>
<th>6/30/17</th>
<th>3/31/18</th>
<th>Change</th>
<th>Fiscal-Year Investment Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money Market Fund</td>
<td>$54,298</td>
<td>$643,472</td>
<td>$589,174</td>
<td>0.03%</td>
</tr>
<tr>
<td><strong>Equity Funds:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbia Seligman Com CL A</td>
<td>$244,442</td>
<td>$517,176</td>
<td>$272,734</td>
<td>15.67%</td>
</tr>
<tr>
<td>Delaware Value Fund</td>
<td>2,299,754</td>
<td>2,583,377</td>
<td>283,623</td>
<td>8.96%</td>
</tr>
<tr>
<td>Fidelity Advisor Biotechnology CL A</td>
<td>242,283</td>
<td>524,058</td>
<td>281,775</td>
<td>6.45%</td>
</tr>
<tr>
<td>Fidelity Advisor Health Care CL A</td>
<td>247,914</td>
<td>534,633</td>
<td>286,719</td>
<td>7.37%</td>
</tr>
<tr>
<td>First Eagle Global Class A</td>
<td>249,613</td>
<td>500,158</td>
<td>250,545</td>
<td>4.39%</td>
</tr>
<tr>
<td>Vanguard Extended Market Index Fund</td>
<td>2,730,112</td>
<td>2,977,025</td>
<td>246,913</td>
<td>10.16%</td>
</tr>
<tr>
<td>Vanguard 500 Index Fund</td>
<td>9,908,159</td>
<td>10,796,461</td>
<td>888,302</td>
<td>10.52%</td>
</tr>
<tr>
<td><strong>Total Equity Funds</strong></td>
<td>15,922,277</td>
<td>18,432,888</td>
<td>2,510,611</td>
<td></td>
</tr>
<tr>
<td><strong>Fixed Income Funds:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lord Abbett Bond Debenture Fund</td>
<td>8,265,627</td>
<td>8,275,157</td>
<td>9,530</td>
<td>3.12%</td>
</tr>
<tr>
<td>Lord Abbett Short Duration Income Fund</td>
<td>7,502,812</td>
<td>7,422,808</td>
<td>(80,004)</td>
<td>0.83%</td>
</tr>
<tr>
<td><strong>Total Fixed Income Funds</strong></td>
<td>15,768,439</td>
<td>15,697,965</td>
<td>(70,474)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$31,745,014</td>
<td>$34,774,325</td>
<td>$3,029,311</td>
<td>6.04%</td>
</tr>
</tbody>
</table>

**Current Asset Allocation**

- **Equities, 53%**
- **Fixed Income, 45%**
- **Money Market, 2%**

Formal Session of the Board of Trustees - VII. Informational Items
VII-B. UNIVERSITY ISSUED BOND BALANCES

Attached is an analysis of net revenues, debt retirement, and trustee reserve funds for University Bonded Operations for the period ended March 31, 2018.
<table>
<thead>
<tr>
<th>Bonds Outstanding</th>
<th>Long-Term Outstanding Amount</th>
<th>Current Outstanding Amount</th>
<th>Total Outstanding</th>
<th>Original Issue Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 2008 Bond Issue (maturity 2038)</td>
<td>$5,090,000</td>
<td>$ -</td>
<td>$5,090,000</td>
<td>$15,880,000</td>
</tr>
<tr>
<td>Series 2009A Bond Issue (maturity 2039)</td>
<td>14,750,000</td>
<td>430,000</td>
<td>15,180,000</td>
<td>18,235,000</td>
</tr>
<tr>
<td>Series 2010A Bond Issue (maturity 2040)</td>
<td>7,890,000</td>
<td>230,000</td>
<td>8,120,000</td>
<td>10,975,000</td>
</tr>
<tr>
<td>Series 2012A Bond Issue (maturity 2034)</td>
<td>26,350,000</td>
<td>1,310,000</td>
<td>27,660,000</td>
<td>33,070,000</td>
</tr>
<tr>
<td>Series 2013A Bond Issue (maturity 2036)</td>
<td>11,235,000</td>
<td>790,000</td>
<td>12,025,000</td>
<td>14,265,000</td>
</tr>
<tr>
<td>Series 2015A Bond Issue (maturity 2046)</td>
<td>22,990,000</td>
<td>445,000</td>
<td>23,435,000</td>
<td>24,295,000</td>
</tr>
<tr>
<td>Total - All Bond Issues</td>
<td>$88,305,000</td>
<td>$3,205,000</td>
<td>$91,510,000</td>
<td>$116,720,000</td>
</tr>
</tbody>
</table>
VII-C. RESEARCH AND SPONSORED PROGRAMS REPORT

A report of contracts and grants is attached hereto.

This is for the Board's information.
### Pre-Proposals Submitted

(Excluded from Proposals Submitted figures below)

**FYTD 2017:** 46
**FYTD 2018:** 34

### Sponsored Awards

**Fiscal Year 2018**

3rd Quarter

*Ended March 31, 2018*

**TOTAL:** $41,447,251

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>FY '18 as of 3/31</th>
<th>FY '17 as of 3/31</th>
<th>Variance</th>
<th>FY '18 as of 3/31</th>
<th>FY '17 as of 3/31</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA</td>
<td>44</td>
<td>47</td>
<td></td>
<td>4,155,923</td>
<td>1,519,130</td>
<td>2,636,793</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>157</td>
<td>153</td>
<td></td>
<td>6,781,238</td>
<td>7,005,727</td>
<td>-224,489</td>
</tr>
<tr>
<td>US Department of Agriculture</td>
<td>39</td>
<td>57</td>
<td></td>
<td>1,523,412</td>
<td>2,780,051</td>
<td>-1,256,639</td>
</tr>
<tr>
<td>US Department of Defense</td>
<td>69</td>
<td>77</td>
<td></td>
<td>9,351,470</td>
<td>9,831,297</td>
<td>-479,827</td>
</tr>
<tr>
<td>US Department of Education</td>
<td>2</td>
<td>1</td>
<td></td>
<td>35,317</td>
<td>329,907</td>
<td>-294,590</td>
</tr>
<tr>
<td>US Department of Energy</td>
<td>29</td>
<td>23</td>
<td></td>
<td>1,016,626</td>
<td>1,685,759</td>
<td>-669,133</td>
</tr>
<tr>
<td>US Department of HHS</td>
<td>29</td>
<td>32</td>
<td></td>
<td>1,585,333</td>
<td>1,000,171</td>
<td>585,162</td>
</tr>
<tr>
<td>US Department of Transportation</td>
<td>8</td>
<td>12</td>
<td></td>
<td>1,495,825</td>
<td>2,856,231</td>
<td>-1,360,406</td>
</tr>
<tr>
<td>Other Federal Agencies*</td>
<td>31</td>
<td>34</td>
<td></td>
<td>2,984,492</td>
<td>1,735,309</td>
<td>1,249,183</td>
</tr>
<tr>
<td><strong>Federal Agency Total</strong></td>
<td>408</td>
<td>436</td>
<td></td>
<td>28,929,636</td>
<td>32,534,777</td>
<td>-3,605,141</td>
</tr>
<tr>
<td>State of Michigan</td>
<td>35</td>
<td>21</td>
<td></td>
<td>2,046,748</td>
<td>754,878</td>
<td>1,291,870</td>
</tr>
<tr>
<td>Industrial</td>
<td>142</td>
<td>167</td>
<td></td>
<td>5,721,452</td>
<td>6,176,321</td>
<td>-454,869</td>
</tr>
<tr>
<td>Foreign</td>
<td>25</td>
<td>13</td>
<td></td>
<td>1,286,939</td>
<td>1,097,578</td>
<td>189,361</td>
</tr>
<tr>
<td>All Other Sponsors</td>
<td>52</td>
<td>69</td>
<td></td>
<td>1,212,847</td>
<td>1,193,959</td>
<td>18,888</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>662</td>
<td>706</td>
<td></td>
<td>39,197,622</td>
<td>41,757,513</td>
<td>-2,559,891</td>
</tr>
<tr>
<td>Gifts**</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>2,236,618</td>
<td>2,366,672</td>
<td>-130,054</td>
</tr>
<tr>
<td>Crowd Funding</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>13,011</td>
<td>13,001</td>
<td>0</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>662</td>
<td>706</td>
<td></td>
<td>41,447,251</td>
<td>44,137,186</td>
<td>-2,689,935</td>
</tr>
</tbody>
</table>


**Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.
SPO & IIE Metrics

1 Administration
College of Engineering
Great Lakes Research Center 1,009,438
College of Sciences & Arts 5,932,569
Keweenaw Research Center 7,280,450
Michigan Tech Research Institute 4,794,169
Pavlis Honors College 273,893
School of Business & Economics 51,000
School of Forest Resources & Env Science 2,455,222
School of Technology 1,339,485

Percentages of Tenured & Tenure Track Faculty
(as either PI or Co-PI)

Submitting Proposals since 07/01/2017
63.7%

On Active Projects as of 03/31/2018
67.3%

Fiscal Year 2018
3rd Quarter
Ended March 31, 2018
TOTAL: $41,447,251

Disclosures Received
- 69.44% 19.44% - - 5.56% - - - 5.56% 18 22 -18.2%
Nondisclosure Agreements
- 72.22% 22.22% - - - - - 5.56% - 18 13 38.5%
License Agreements
- 81 - - - - 5.56% - - - 10 15 -33.3%
Gross Royalties
- 3.03% 60.61% 9.09% - 21.21% - - - 6.06% - 346,860 311,184 11.5%

Combined Metrics from both the Sponsored Programs Office (SPO) and Innovation & Industry Engagement (IIE)

Percentages reflect the proportional contribution from each Division (calculated by dividing the sum of the fractional contributions of all inventors for each unit by the total number of inventors).
<table>
<thead>
<tr>
<th>Industry Segment</th>
<th>FY '18 as of 3/31</th>
<th>FY '17 as of 3/31</th>
<th>FY '18 as of 3/31</th>
<th>FY '17 as of 3/31</th>
<th>Variance $</th>
<th>Variance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>60</td>
<td>67</td>
<td>113</td>
<td>127</td>
<td>4,757,415</td>
<td>-402,130</td>
</tr>
<tr>
<td>Business &amp; Economics</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>16</td>
<td>254,561</td>
<td>-202,078</td>
</tr>
<tr>
<td>Chemical</td>
<td>3</td>
<td>14</td>
<td>8</td>
<td>24</td>
<td>218,695</td>
<td>-400,551</td>
</tr>
<tr>
<td>Civil</td>
<td>8</td>
<td>9</td>
<td>16</td>
<td>17</td>
<td>64,359</td>
<td>-113,292</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>17</td>
<td>20</td>
<td>38</td>
<td>33</td>
<td>951,805</td>
<td>423,544</td>
</tr>
<tr>
<td>Defense &amp; Space</td>
<td>26</td>
<td>31</td>
<td>32</td>
<td>32</td>
<td>1,990,884</td>
<td>404,381</td>
</tr>
<tr>
<td>Energy</td>
<td>9</td>
<td>14</td>
<td>29</td>
<td>38</td>
<td>456,554</td>
<td>-256,829</td>
</tr>
<tr>
<td>Environmental</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>186,694</td>
<td>63,365</td>
</tr>
<tr>
<td>Health</td>
<td>10</td>
<td>13</td>
<td>18</td>
<td>18</td>
<td>752,816</td>
<td>250,158</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>5</td>
<td>9</td>
<td>21</td>
<td>16</td>
<td>164,923</td>
<td>-6,409</td>
</tr>
<tr>
<td>IT Services</td>
<td>2</td>
<td>7</td>
<td>12</td>
<td>13</td>
<td>170,600</td>
<td>-525,469</td>
</tr>
<tr>
<td>Mining &amp; Metals</td>
<td>18</td>
<td>14</td>
<td>30</td>
<td>27</td>
<td>358,935</td>
<td>-30,917</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>11</td>
<td>14</td>
<td>23</td>
<td>520,838</td>
<td>170,722</td>
</tr>
<tr>
<td>Technology</td>
<td>7</td>
<td>10</td>
<td>15</td>
<td>10</td>
<td>813,230</td>
<td>351,097</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>177</td>
<td>229</td>
<td>365</td>
<td>406</td>
<td>11,662,309</td>
<td>-274,108</td>
</tr>
</tbody>
</table>

*Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.

**Gift numbers include Industry gifts ONLY, not others including Association or Society gifts.
## Michigan Technological University
### Total Research Expenditures by College/School/Division
#### Fiscal Year 2018 & 2017
##### As of March 31, 2018 and March 31, 2017

<table>
<thead>
<tr>
<th>College/School/Division</th>
<th>FY2018</th>
<th>FY2017</th>
<th>Variance</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration*</td>
<td>2,858,818</td>
<td>2,819,246</td>
<td>39,572</td>
<td>1.4%</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>21,955,410</td>
<td>17,796,598</td>
<td>4,158,812</td>
<td>23.4%</td>
</tr>
<tr>
<td>College of Science &amp; Arts</td>
<td>12,783,742</td>
<td>12,507,981</td>
<td>275,761</td>
<td>2.2%</td>
</tr>
<tr>
<td>Great Lakes Research Center**</td>
<td>256,473</td>
<td>108,305</td>
<td>148,168</td>
<td>136.8%</td>
</tr>
<tr>
<td>Pavlis Honors College</td>
<td>194,377</td>
<td>215,057</td>
<td>(20,680)</td>
<td>-9.6%</td>
</tr>
<tr>
<td>Keweenaw Research Center (KRC)</td>
<td>6,552,805</td>
<td>5,251,037</td>
<td>1,301,768</td>
<td>24.8%</td>
</tr>
<tr>
<td>Michigan Tech Research Institute (MTRI)</td>
<td>6,296,773</td>
<td>6,089,643</td>
<td>207,130</td>
<td>3.4%</td>
</tr>
<tr>
<td>School of Business &amp; Economics</td>
<td>1,176,417</td>
<td>1,136,021</td>
<td>40,396</td>
<td>3.6%</td>
</tr>
<tr>
<td>School of Forest Resources &amp; Environmental Science</td>
<td>4,139,788</td>
<td>4,293,538</td>
<td>(153,750)</td>
<td>-3.6%</td>
</tr>
<tr>
<td>School of Technology</td>
<td>373,177</td>
<td>419,228</td>
<td>(46,051)</td>
<td>-11.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>56,587,780</strong></td>
<td><strong>50,636,654</strong></td>
<td><strong>5,951,126</strong></td>
<td><strong>11.8%</strong></td>
</tr>
</tbody>
</table>

*Includes the Vice Presidents, Provost, and others who report to a VP, Provost or the President. Except for the research institutes that report to the VPR.

**Includes GLRC department (non-academic researchers) expenditures only. All other GLRC center expenditures are shown in the researchers’ respective colleges.
VII-D. ADVANCEMENT AND ALUMNI ENGAGEMENT REPORT

Attached is a report from Dr. Les Cook, Vice President for Student Affairs and Advancement, on the university’s advancement and alumni engagement activities.

This is for the Board’s information.
ADVANCEMENT AND ALUMNI ENGAGEMENT
BOARD OF DIRECTORS REPORT
May 2018

Advancement
● Bernard clock tower groundbreaking is scheduled for Friday, April 27 at 11:30 am. The dedication ceremony is scheduled for Thursday, August 4. This is during alumni reunion and will take place prior to the pasty picnic.
● Hosted 3 VIP events
  ○ John ('53) and Nancy Simmons hosted a VIP luncheon at their club, the Naples National, in Florida on Tuesday, March 6 for 44 guests. John has graciously hosted VIP luncheons for Michigan Tech a number of times over the last 14 years.
  ○ Dan ('60) and Jolayne Farrell hosted a VIP luncheon at their club, the Bellaire Country Club, in Florida on Wednesday, March 7 for 31 guests. Dan has graciously hosted VIP luncheons for Michigan Tech a number of times over the last 14 years.
  ○ Jerry ('60) and Suzanne Blumberg hosted a VIP hors d'oeuvres reception at their home in Durango, Colorado on March 19.
● Gifts
  ○ Franklin St. John - $1.6M - Planned Gift - Franklin St. John Endowed Professorship
  ○ Mark Stumpf - $2.4M - Trust - Dr. Mark R Stumpf & Anne M. Stumpf Endowed Scholarship
● The bi-annual Michigan Tech based component of the 14 Floors Program saw a small contingent of guests on campus, including regulars Dave House, Kanwal Rekhi, John Rockwell, and Shankar Mukherjee. These alumni spent a number of days engaged in one-on-one advisory and technical discussions with staff and faculty, mentoring sessions with students, panelists for business plan pitches on and off campus, and networking opportunities with the campus community. Students on the Bay Area trip had a chance to debrief with these guests and the campus community in the Pavlis Honors College’s ICE House which fosters and houses entrepreneurial students on campus.

Annual Giving
● FY18 Campus Campaign has raised $221,759 from 348 faculty and staff members for a participation rate of 23%.
● As of the end of March, we are at 93% of our Annual Giving goal of $2.5M with $2,336,479.
● The Annual Fund goal (Annual Fund is the unrestricted subset of Annual Giving) is at 77% of $1.5M with $1,148,170.
● Our Reunion Giving is:
  ○ 1958 $183,116
  ○ 1968 $1,427,672
Alumni Engagement


- Alumni Weekend at Ford Center and Forest in Alberta, MI July 20-22. Guests will learn about the flora and fauna of the Keweenaw from School of Forest Resources and Environmental Science faculty. They will hear about how technology such as drones, GIS, and remote sensing is impacting environmental research. Have them contact the Alumni House if they are interested in learning more.

- NEW enewsletter for Alumni and Friends. On Tuesday, April 10 we will begin sending out our new enewsletter. This new communication will be segmented into three audiences and combine the information that was previously included in TechAlum and Tech Legacy. It will be sent out on the second Tuesday of each month.

- 2018 Alumni Award Recipients: Outstanding Young Alumni - Amanda C. Nerg (Taylor) ’10 Business Administration; Outstanding Service Award - Sally P. Heidtke (Pearson) ’81 Chemical Engineering; Distinguished Alumni - Susan B. Kiehl (Brechting) ’83 Metallurgical Engineering; Distinguished Alumni - Melvin J. Visser ’59 Chemical Engineering; Honorary Alumni - Igor Kliakhandler (former professor in Mathematical Sciences); and, Humanitarian Award - Don T. Makay ’99 Electrical Engineering Technology.
VII-E. RECENT MEDIA COVERAGE

Included herein are recent news items that have appeared throughout the country.

This is for the Board’s information.
Data specific to the announcement of Dr. Richard Koubek as president-elect:

Date Range: April 13 to April 17 at 5pm
- Total traffic to news release:
  - 9,238 page views
- Average time reading release:
  - 6 minutes (65% longer than average release)
- Top cities reading release (% of total traffic)
  1. Houghton (19.5%)
  2. Chicago (6%)
  3. Baton Rouge (3.45%)
  4. Ann Arbor (3.1%)
  5. Grand Rapids (1.5%)
  6. Detroit (1.5%)
  7. Ashburn (1.4%)
  8. New York (1.4%)
  9. Hancock (1.1%)
  10. Dallas (1.1%)

Other Comments
- This is our second-most visited news release for 2018, only behind a Joshua Pearce research story that went viral on social media.
- This release outperformed our Winter Carnival precede, which is normally our top one or two releases every year.
- An average news release gets ~550 pageviews.

The announcement of Richard J. Koubek as the next president of Michigan Tech was covered by more than two dozen media outlets nationwide including:
- U.S. News & World Report
- WLUC TV6
- ABC10/CW 5
- MITECH News
- The Advocate
- WAFB
- Telemundo Amarillo
- MLive
- Greater Baton Rouge Business Report
- Detroit News
- Other papers/websites
  - Macomb Daily
  - Morning Sun (Alma, Mich.)
  - Oakland (Mich.) Press
  - Daily Tribune (Clinton Twp. Mich.)
  - The Republic (Columbus, Ind.)
SF Gate (San Francisco)
Herald Palladium (St. Joseph, Mich)
The Daily Reveille (Baton Rouge, LA)

Other TV stations:
- WJMN-TV Channel 3
- WDAM (Laurel, MS)
- KATC (Lafayette, LA)
- WAFB (Baton Rouge, LA)
- KPLC (Lake Charles, LA)
- KFDA (Amarillo, TX)
- KSLA (Shreveport, LA)
- KTBS (Shreveport, LA)
- WLOX (Biloxi, MS)
- KWES (Odessa, TX)
- WZZM (Grand Rapids, Mich)
- WDIO (Duluth, MN)

Social Media (Friday, April 13 only)
- Facebook 224 likes | 11 comments | 79 shares
- Twitter 81 likes | 1 comment | 35 retweets
- Instagram 584 likes | 4 comments
- LinkedIn 104 likes | 4 comments

*News Media Report, February 8, 2018 – April 17, 2018*

News by category

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Events</strong></td>
<td>1,885</td>
</tr>
<tr>
<td><strong>Athletics</strong></td>
<td>1,741</td>
</tr>
<tr>
<td><strong>Business/People</strong></td>
<td>394</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td>332</td>
</tr>
<tr>
<td><strong>Alumni</strong></td>
<td>282</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>151</td>
</tr>
<tr>
<td><strong>Curricula/Programs</strong></td>
<td>94</td>
</tr>
<tr>
<td><strong>Student Life</strong></td>
<td>59</td>
</tr>
<tr>
<td><strong>Hometowner</strong></td>
<td>17</td>
</tr>
<tr>
<td><strong>No category</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>Total Traditional Media</strong></td>
<td>4,968</td>
</tr>
</tbody>
</table>
**Top Attention Getters**

Joshua Pearce, Replacing Tobacco Fields with Solar Arrays

- IEEE Electronics 360
- Popular Mechanics
- Institute of Engineering and Technology
Research news

Health Sciences

- Research led by Haiying Liu (CHEM) about a fluorescent cellular dye that works in water with promise for cancer cell detection was featured on phys.org and Science Newsline.
- Research by biomedical engineers at Michigan Tech was featured in the article "SME's Humans of Manufacturing — Developing Hearts," in Additive Manufacturing. The article focuses on Dr. Martin Bocks' efforts to solve cardiology problems in small children.
- Medwise reprinted the Michigan Tech News story on mending broken hearts with cardiomyocyte molds.
- The research of Parisa Pour Shahid Saeed Abadi (MEEM) was featured in the article "Helping the Heart: Tech research aimed at growing stronger heart muscle cells faster," published in Thursday's Daily Mining Gazette. The Mining Gazette story was republished in Medical Health News and was featured in the article "Iranian Scientist Develops High-tech Aiming at Growing Stronger Heart Muscle Cells Faster" in The World News.

Mobility

- The testing of autonomous vehicles at Road America near Elkhart Lake, Wisconsin by Michigan Tech students was covered by Fox11 News in Green Bay. See the story. The testing of autonomous vehicles at Road America near Elkhart Lake, Wisconsin by Michigan Tech students was covered FoxNE/KFXL in Lincoln, Nebraska.
- Michigan Tech was mentioned in the Detroit Free Press article "GM engineers lead robotics mentoring in Southwest Detroit." The article mentions youth programs by Tech and Kettering University.

Energy and Environment

- Joshua Pearce (MSE/ECE) was interviewed on the public radio program "Science Friday" (March 23). Pearce was a guest on the segment "How to Prevent Russia From Hacking into the US Power Grid."
- The Michigan Tech News story "Low-tech Affordable Solutions to Improve Water Quality," was reprinted by several media outlets including G.I.T. Laboratory Journal, NewsCaf and Science Newsline. The Michigan Tech News story "Low-tech Affordable Solutions to Improve Water Quality," was reprinted by several media outlets including Engineering 360.
- The work of researchers at Michigan Tech into low-cost methods of purifying water was featured in the article "New Water Treatments Address Biological and Synthetic Contaminants," published in engineering.com. The article also featured several photographs taken by Sarah Bird (UMC).
WLUC TV6, Marquette, ran a story on efforts by the Undergraduate Student Government (USG) and Graduate Student Government (GSG) to push for sustainability on campus. See the story here.

Joshua Pearce (MSE/ECE) was quoted in "Can the US protect its power grid from hackers?" on Roots Radio WMOT, owned by Middle Tennessee State University. The article was based off an interview with Pearce that aired on "Science Friday" with Ira Flatow on Public Radio. The story also appears on GlobalPost, WBFO and WESA.

Other

Diane Shoos (HU) was quoted in a Chicago Tribune article on how domestic violence in presented on screen and how those representations shape public opinion.

L. Syd M Johnson (HU) was interviewed by Big Think for an article about the Philosophers' Amicus Curiae brief on chimpanzee personhood. Johnson is one of the co-authors of the brief, which was filed with the New York State Court of Appeals on Feb. 26, as part of a case involving two captive chimpanzees.

The new applications of low-cost metal 3D printing developed by ECE alumnus Yuenyong (Ake) Nilsiam along with Paul Sanders (MSE) and Joshua Pearce (MSE/ECE) was covered widely by the technical press and popular media including in America, Russia and China.

Alumni in the News

The naming of Michigan Tech Alumna Kimberly Foster '94 as the new dean of Tulane University's School of Science and Engineering was covered by several media outlets including the Times-Picayune and New Orleans City Business.

Michigan Tech Alumna Breanna Cornell, was the subject of an article on MLive. Cornell, who earned a bachelor's in environmental engineering, was the recipient of the Women in Manufacturing STEP (Science, Technology, Engineering and Production) Ahead Emerging Leader Award. The STEP Ahead Awards honor women who have demonstrated excellence and leadership in their careers and represent all levels of the manufacturing industry, which is an initiative by The Manufacturing Institute.

Michigan Tech Alumna Leslie Kilgore '95, vice president for engineering for Thomas Built Buses, was honored with the Rodica Baranescu Award for Technical and Leadership Excellence by SAE International. The article "Thomas Built Buses VP Honored for Engineering Excellence" appeared in Schoolbusfleet.com.

Community

Great Lakes Research Center after-school programming for grades 1-8 was the focus of an article in the Daily Mining Gazette.

Research by Sarah Scarlett (SS) and Dan Trepal, a PhD student in Industrial Heritage and Archeology, was featured in the Detroit Free Press. The article describes how the Keweenaw Time Traveler can be used to understand how Copper Country towns have changed over time. The article was reprinted in the Tri-City Herald, the Bryan Texas Eagle, the Argus Press, the Kansas City Star and the Washington Times.

Sister Jacqueline Spaniola, pastoral associate minister at St. Albert the Great University Parrish, was featured in "Franciscan Sisters Offer Discernment Retreats Designed for Young Adult Catholic Women," on Fox34 in Lubbock, Texas, Erie News Now, and PR Underground, Crossroads Today and several other outlets.

Steven Walton (SS) was quoted in the Washington Post story "Meet the Latest Tourist Attraction: Abandoned Factories." Walton, who teaches history, is executive secretary of the Society for Industrial Archaeology (SIA), an organization that seeks to preserve the
nation's industrial heritage. The Post story was picked up by several media outlets nationwide, including SFGate, Stars and Stripes Online, and Houston Chronicle Online.

- Don Lafreniere (SS), project leader for the GIS Resources and Applications for Career Education project (GRACE) was interviewed for a story on GRACE by the Houghton Daily Mining Gazette. Read the story here.
- Michigan Tech Hockey fans, the Pep Band and even Blizzard T. Husky were complimented in the column "#GOTECH!—Opposing Team's Fans Are Setting the Standard," in the Mankato Free Press. The column was written by Free Press Features Editor Robb Murray.
- Michigan Tech President Glenn Mroz was the guest of Don Ryan on Sunday's The Ryan Report on WLUC TV6. You can watch the program here.
- WLUC TV6 in Marquette covered the Rozsa Center being named one of the best university performing arts centers in America. Rozsa Marketing Manager Bethany Jones was interviewed for the story.
- Steven Walton (SS) was quoted in the story "North America's Industrial Past is Drawing Tourists in Growing Numbers," in the Waterloo Region Record. The story also ran in the Hamilton Spectator.
- An exhibition of art by Michigan Tech students Tristan Kolb, Bryan Lowney, Nathan Shaiyen and Peter Zhu currently showing in the Copper Country Community Arts Center, was covered by WLUC TV6 in the story "New Copper Country Community Arts Center Exhibit features Michigan Tech Students." The exhibit is curated by Stefka Hristova (HU).
- WJMN TV3 and WLUC TV6, covered the 20th Annual Western UP Science Fair and STEM Festival, held on the Michigan Tech campus Thursday.
- The exhibit "World War One and the Copper Country" was mentioned in an article on 4-traders.com. The exhibit is a collaboration between Michigan Tech, Finlandia University and the Carnegie Museum in Houghton.

Of Interest

- The Michigan Tech Undergraduate Student Government's attempt to break the world record for most snowmen built in one hour was covered by numerous media outlets, including the Detroit Free Press.
- Campus Diversity Educator Amy Howard's recent presentation on intersectionality, part of the Center for Diversity and Inclusion's Diverse Dialogue series, was featured in an article in the Daily Mining Gazette.
- Director of Career Services Steve Patchin was quoted in a Capitol News Service article on whether delayed retirement helps close the workforce skills gap.
- Fox 66, in Flint, ran a story about Hemlock Semiconductor offering 30 students in the Great Lakes Bay Region scholarships to Michigan Tech's Engineering Scholars Summer Youth Program. The story was also covered on WEYI, and the Midland Daily News.
- Angie Carter (SS) is co-author of a blog that was reprinted in Food First. The blog, "Taking Action for Public Science: Re-Imagining Iowa's Leopold Center for Sustainable Agriculture," was originally posted by the UCS Science Network at Union of Concerned Scientists.
• Michigan Tech's partnership with Keypath Education received national coverage on outlets including NewsDog and WLOX.
• Simon Carn (GMES) was cited in the article "Ambae volcano ERUPTION: Mass evacuations ordered as volcano threatens to blow," in Express. The article deals with the increased activity and potential evacuation of thousands of households near the Ambae volcano on the island nation of Vanuatu in the South Pacific.
• The column "Reliving the day gone by as a Division I hockey goaltender" ran in a blog in the Herald Journal of Winsted, Minnesota. The blog, by their Sports Editor Brad Salmen, recounts his experience as a sports writer for the Daily Mining Gazette when he donned goalie pads and practiced a day with the Michigan Tech Huskies.
• Michigan Tech Provost and Vice President for Academic Affairs Jacqueline Huntoon was interviewed for the article "The Importance of Teaching Earth Science," reprinted in teachmag.com. The article originally appeared in the Jan./Feb. edition of TEACH Magazine.
• The observance of Equal Pay Day was covered by WJMN TV3 and WLUC TV6. Faith Morrison (ChE) was interviewed for both stories.
• WLUC TV6 in Marquette extensively covered events leading up to the WHCA Tournament hockey game between the Huskies and Northern Michigan University. The Marquette station ran three stories: "Rookie Coaches Prepare for WCHA Championship," "MTU Welcomes Fans to WCHA Championship Watch Party" and "Michigan Tech to Host Watch Party for WCHA Championship Game."

Social media
Date range: February 6, 2018–April 16, 2018

Facebook 3,034,843 post impressions | 22,713 post clicks | 41,144 page likes
Twitter 345,584 post impressions | 2,255 post clicks | 10,674 followers
Instagram 17,662 photo/video likes | 146 comments | 8,569 followers
Linkedin 6,407 pageviews | 639 followers gained | 53,060 followers
Youtube 41,798 video views | 67,000 minutes watched | 1,924 total subscribers
Snapchat 1,836 friends
Pinterest 244 followers
News subscribers 66

Best performing posts displayed on following pages
Facebook

Michigan Technological University
February 6

Only at Michigan Tech could 16 feet of snow be transformed into something magical.

Winter Carnival Set to Begin
More than 16 feet of snow has fallen in Houghton, Michigan this winter. While that is indeed impressive, what Michigan Technological University students do with it is nothing short of magical.

MTU.EDU

116,221 people reached

1.5K

35 Comments 1K Shares
Twitter

Michigan Tech stands with @CMUniversity today.

10:52 AM - 2 Mar 2018

49 Retweets 198 Likes

Instagram

michigantech WCHA champs. NCAA Tournament bound. @mtuhuskies @mtu_hockey #mtuhockey #huskypride #follothewhuskies michigantech #ieracity @wcha_nhockey

mrs.katiebarber Yay!! 🎉ющ🎉 Congrats bays!
cydiperkies Way to go Huskies! #weovehockey

1,222 likes

MARCH 18
Household by household, energy users have the power to regulate smooth flow through peak demand times. **Sumit Paudyal** works to devise the algorithms that make it possible. **National Science Foundation (NSF)**
VII-F. EMPLOYEE SAFETY STATISTICS

Included herein is a report from the Health and Safety Task Force and Human Resources.

This is for the Board's information.
### Employee Safety Statistics Year-to-Date

**January - March**

<table>
<thead>
<tr>
<th>Category</th>
<th>Years</th>
<th>AFSCME</th>
<th>Faculty</th>
<th>Non-Exempt</th>
<th>POA</th>
<th>Professional</th>
<th>Temporary</th>
<th>UAW</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Recordable Injuries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injury Only w/Medical - No Loss Time</td>
<td>2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lost Time Cases</td>
<td>2017</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Restricted Work Cases</td>
<td>2017</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Occupational Safety and Health Administration (OSHA) Recordable Injuries (Total of above)</td>
<td>2017</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Number of Days</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injury Loss Time *</td>
<td>2017</td>
<td>26</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>0</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Restricted Work Days *</td>
<td>2017</td>
<td>75</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>0</td>
<td>0</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Hours Worked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Work Hours</td>
<td>2017</td>
<td>81,856</td>
<td>252,071</td>
<td>39,258</td>
<td>4,858</td>
<td>289,422</td>
<td>16,870</td>
<td>61,508</td>
<td>745,843</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>77,597</td>
<td>254,536</td>
<td>38,326</td>
<td>5,013</td>
<td>292,580</td>
<td>17,479</td>
<td>62,872</td>
<td>748,403</td>
</tr>
<tr>
<td>Percentage of Work Hours</td>
<td>2017</td>
<td>11.0%</td>
<td>33.8%</td>
<td>5.3%</td>
<td>0.7%</td>
<td>38.8%</td>
<td>2.3%</td>
<td>8.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>10.4%</td>
<td>34.0%</td>
<td>5.1%</td>
<td>0.7%</td>
<td>39.1%</td>
<td>2.3%</td>
<td>8.4%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

OSHA has established specific calculations that enable the University to report the Recordable Injuries, Lost Time Case Rates and Frequency Rates. The Standard Base Rate (SBR) calculation is based on a rate of 200,000 labor hours which equates to 100 employees who work 40 hours per week for 50 weeks per year. Using the SBR allows the University to calculate their rate(s) per 100 employees.

* The number of days are total days for the life of the cases first reported during this period.
VIII. OTHER BUSINESS
IX. PUBLIC COMMENTS
X. INFORMAL CLOSED SESSION FOR REVIEW OF PENDING LITIGATION
XI. ADJOURNMENT