School of Science & Mathematics

Budget and Resources Committee
April 7, 2016
Topics for Discussion

1. Program Status
   - Areas of need/strategic investment/improvement

2. Anticipated Initiatives/Activities
   - Faculty, Staff, Technology & infrastructural needs
   - Implementation using current School resources
   - Implementation requiring additional resources
   - Priority relative to strategic imperatives.

• ... how you anticipate allocating current resources, and additional resources if appropriate, in support of the College’s strategic imperatives ...
• ... material changes that you believe have or will better enable your schools/programs to meet the College’s goals, initiatives, and strategic imperatives.
• ... school priorities with respect to allocations of people, space, and time.
### Budget Status

<table>
<thead>
<tr>
<th>Line Item</th>
<th>Allocation</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>School's S &amp; E Budget</td>
<td>$23,300</td>
<td>$19,640</td>
</tr>
<tr>
<td>Equipment Replacement</td>
<td>$90,000</td>
<td>$90,000</td>
</tr>
<tr>
<td>Summer Session</td>
<td>$14,000</td>
<td>$14000</td>
</tr>
<tr>
<td>BASC</td>
<td>$3000</td>
<td>$3000</td>
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</tbody>
</table>

- S&E (OTPS) Budget of 8 departments: $187,510 (allocation) & $159,384 (actual).
- Lab fees (~ $50,000 total by 4 departments) are among the things that are keeping us afloat. We are requesting a fee increase.
- Grad/Teaching Assistants are critical to recruit science and mathematics graduate students; they offer a cost-effective way to teach introductory labs and/or function as tutors.
Need/Strategic Investment/Improvement

• BIO (*Confocal microscope*; Ultra-centrifuge; Autoclaves) $300,000.00
• CHM (*NMR*; Chirascan CD spectrometer; *Horiba Fluorescence Spectrometer*) $500,000.00
• ESC (ICP; Ion-chromatograph) $120,000.00
• PHS (PPMS; AFM; X-ray diffractometer) $350,000.00

• Thanks to FFE budget and grants, departments were able to acquire state-of-the-art analytical and computational equipment.
• Resources are needed for repairs and upkeep.
• This year, the School spent nearly $25,000 for equipment repair.
• Start-up money for new faculty.
Lab Assistants

- Dept. of Chemistry & Biochemistry has been using (undergrad) lab assistants to increase the efficiency of lab offerings.
- Temporary services money has remained flat ($8000) for over 10 years.
- Each year, the department is in red by about $12,000.
### External Funding

<table>
<thead>
<tr>
<th>Year</th>
<th>Submissions</th>
<th>Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Dollar Amount (Yr 1 Only)</td>
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<tr>
<td>2014-14</td>
<td>60</td>
<td>$4,750,000.00</td>
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<tr>
<td>2013-14</td>
<td>34</td>
<td>$2,039,829.00</td>
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<tr>
<td>2012-13</td>
<td>40</td>
<td>$3,538,066.00</td>
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<tr>
<td>2011-12</td>
<td>39</td>
<td>$6,661,869.00</td>
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</tbody>
</table>

- Increase incentives for applying for and securing grants.
- Return to faculty a share of the indirect cost.
- Hire part- or full-time research faculty to enhance grant activity.
- Establish a School fund for faculty development.
Faculty Development /Support

TEACHING

• 2012 PCAST Recommendations
  – Catalyze widespread adoption of empirically validated teaching practices.
  – Advocate and provide support for replacing standard laboratory courses with discovery-based research courses.

• Conduct workshops for faculty

RESEARCH

• Provide monetary support for faculty to maintain their labs when funding runs out so that they may continue to engage students in research.

SPACE – High Impact Practices

• Create space (lounge) in Lennon, Holmes & Brown for faculty-student and student-student collaboration to thrive.

INTERNATIONAL STUDENTS

• EPITECH
Anticipated Initiatives/Activities

• New Majors (Proposals submitted)
  – Neuroscience
  – Emergency Management.

• New Majors (At discussion stage).
  – Cyber Security
  – Forensic Science

• Minors/Majors worthy of consideration
  – Informatics
  – Data Science
  – Sustainability
  – Energy Systems
  – GIS
  – Photonics
Faculty, Staff, Technology & Infrastructure

- Neuroscience
- Emergency Management
- Cyber Security
- Forensic Science
- Informatics
- Data Science
- Sustainability
- Energy Systems
- GIS
- Photonics

- No new resources.
- Minimal resources (3 adjuncts per semester
- 1.5 to 2 faculty positions
- 0.5 to 1 faculty position + collaboration
- 1 new position + collaboration
- 2 faculty positions + collaboration
- 2 faculty positions + collaboration
- 2 faculty positions + collaboration
- 1 faculty position
- 1 (hybrid) faculty position
Enrollment- & Retention-Related Initiatives

- High school courses taught by high school teachers for college credit (~$125,000).
- Provide professional development training to high school teachers.
- Train and deploy STEM learning specialists (Academic success center).
- Build a vibrant intellectual neighborhood through programming.
- Offer supplementary and/or just-in-time instruction to students.
- Bring early career alumni and professionals to campus to provide networking opportunities.
Organizational Management

• Resources are insufficient, but are managed well.

• Shortfalls:
  – Infusion of sophisticated equipment (thanks to FFE), but no mechanism to service them or replace them.
  – Faculty start-up.
  – Faculty strives to secure grant money to support research, but competition is intense; hence, the School may have to provide support to sustain research labs.

• Efficiencies:
  – Created an “N” course that enrolls nearly 200 students.
  – Some departments reduced the frequency with which courses are offered.
  – Some departments consolidated courses (e.g., CIS and CSC courses).
  – Establish “rainy day” fund and cancel boat insurances.