Tennessee Technological University

Tennessee Technological University is one of the member institutions governed by the Tennessee Board of Regents. The 46 institutions in this system include six senior universities, 13 two-year community colleges and 26 applied technology centers. Approximately 200,000 students attending post-secondary institutions in Tennessee are enrolled in the Tennessee Board of Regents (TBR) system.

INNOVATION
EDUCATION
TRAINING
INFRASTRUCTURE
INFOMATION
ECONOMIC INCENTIVE SYSTEMS

Fiscal Year 2013-2014

Office of Research Annual Report

Tennessee Technological University
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The mission of the Office of Research is to support faculty in developing strong research programs and producing quality competitive research proposals. Whether locating funding opportunities, providing easy access to policies, or assisting in proposal preparation, the goal is to offer effective strategies, responsive information, and tangible assistance to the Tennessee Technological University community.

The Office of Research supports the Principal Investigator and provides services for proposals, award management, contract and license negotiation, data access and support services, research administration, and regulatory compliance.

The personnel of the Office of Research support the University's mission by:

- Facilitating the identification of funding opportunities;
- Training and assisting with proposal development;
- Submitting proposals to funding agencies;
- Monitoring project and research to ensure regulatory compliance;
- Negotiating agreements, contracts, and grants;
- Coordinating training for compliance of agreements, contracts, and grants;
- Facilitating the protection of intellectual property and technology transfer;
- Reviewing sponsor guidelines and identifying key issues;
- Facilitating meetings with the Principal Investigator, Business Office, and other appropriate departments and units;
- Collaborating with university and community stakeholders, as appropriate, during the proposal process;
- Assisting with electronic submission of proposals; and
- Completing forms for certification, as necessary.
Summary of Activities
2013-2014

During the 2013-2014 fiscal year, the University's mission was supported through the Office of Research in the following ways:

Grants and contracts externally funded numbered 129, with a value of $12,074,067, which represents an increase of 0.8% over the 2012-2013 total of $11,974,879.

Grants and contracts received through the three Centers of Excellence and the STEM Center numbered 87, with a value of $7,952,099, which represents 65% of total dollars and 67% of the total number of grants and contracts received.

Grants and contracts received through federal agencies numbered 73 with a value of $5,640,601, which represents 56.6% of grants and contracts and 47% of total dollars received.

Grants and contracts received through state agencies numbered 42 with a value of $6,036,257, which represents 32.6% of the total number of grants and contracts and 50% of total grant and contract dollars received.

Private contracts were at 12 with a value of $366,656, which represents 9% of the total number of grants and contracts and 3% of total grant and contract dollars.

Local sources accounted for 1.5 contracts or 2% of total grants and contracts, with a value of $30,553 or 0.2% of grant and contract dollars.

Grants and contracts received for research numbered 84 with a value of $8,345,113, which represents 65.1% of the total number of grants and contracts and 69% of total dollars received.

Grants and contracts received for public service numbered 25 with a value of $2,439,103, which represents 19.4% of all grants and contracts and 20% of total grant and contract dollars received.

Twelve instruction funding grants and contracts were received, with a value of $681,632, which represents 9.3% of total number of grants and contracts and 6% of total grant and contract dollars.

Academic Support funding accounted for 2.3 contracts, with a value of $240,100, which represents 2% of the total number of grants and contracts and 2% of total grant and contract dollars.
Grants and contracts received for student services/scholarships/fellowships numbered 5 with a value of $368,119, which represents 3.9% of the total number of grants and contracts and 3% of total dollars received.

Internal funds were provided in the amount of $95,688 for small grants to support faculty research. **Nine** Track I proposals from 10 were funded for a total of $26,250 and **7** Track III proposals from 9 faculty were funded for a total of $69,438.

The top three funding agencies were the National Science Foundation at $2,303,899, the Tennessee Department of Education at $628,327, and the Governor’s Highway Safety Office at $543,066.

Proposals submitted for external funding numbered 153 with a value of $46,245,166.

Proposals submitted through the Centers of Excellence and STEM Center numbered 110, with a value of $32,643,588, which represents 72% of proposals submitted and 71% of funds requested.

Proposals submitted to federal agencies numbered 93. A total of $39,923,250 was requested in those proposals, which represents 61% of those submitted and 86% of dollars requested.

Proposals submitted to state agencies numbered 29. A total of $4,991,161 was requested in those proposals, which represents 19% of those submitted and 11% of dollars requested.

Proposals submitted to private agencies numbered 29. A total of $1,300,202 was requested in those proposals, which represents 19% of those submitted and 3% of dollars requested.

Proposals submitted to local agencies numbered 2. A total of $30,553 was requested in those proposals, which represents 1% of proposals submitted and 0.06% of dollars requested.
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<table>
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<th>Title</th>
<th>Page</th>
</tr>
</thead>
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<td>Figure 2</td>
<td>Percentage Funding of Proposals by Agency Classification</td>
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<td>Figure 3</td>
<td>Percentage Funding by Activity</td>
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<td>Figure 4</td>
<td>External Funds Received FY 2010-2014</td>
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<tr>
<td>Figure 5</td>
<td>Awards Received by Classification FY 2010-2014</td>
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Figure 1: External Funds Historical, Actual and Projected 2006-2014
# Table I: Externally Funded Projects by Department of Project PI* FY 2013-2014

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<tr>
<th>PI's College</th>
<th>PI's Department, Center, or Unit</th>
<th>Centers of Excellence</th>
<th>Departments/ Other Units</th>
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<td><strong>$919,300</strong></td>
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<td></td>
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<td>Other</td>
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<tr>
<td>Athletics</td>
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<td><strong>500</strong></td>
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<td>STEM Center</td>
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<td><strong>Subtotal</strong></td>
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<td><strong>140,500</strong></td>
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<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$2,314,406</strong></td>
<td><strong>$12,074,067</strong></td>
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</table>

*Colleges and Departments not listed did not have funding activity during the fiscal year.
### Table II: Proposals Submitted and Awards Received by University Unit FY 2013-2014

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<tr>
<th>University Unit</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
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<td>$0</td>
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<td>Administrative Offices*</td>
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<td>$0</td>
<td>1</td>
<td>$500</td>
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<td>C/E Energy Systems Research**</td>
<td>34</td>
<td>$7,977,889</td>
<td>28</td>
<td>$2,314,406</td>
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<tr>
<td>C/E Manufacturing Research**</td>
<td>36</td>
<td>$11,309,106</td>
<td>23</td>
<td>$3,252,245</td>
</tr>
<tr>
<td>C/E Water Resources Research**</td>
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<td>$461,158</td>
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<td><strong>TOTAL</strong></td>
<td>153</td>
<td><strong>$46,245,166</strong></td>
<td>129</td>
<td><strong>$12,074,067</strong></td>
</tr>
</tbody>
</table>

* Without Centers of Excellence or STEM Center

** See Table III

NOTE: The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested for the same reason.
**Table III: Proposals Submitted and Awards Received through Centers of Excellence and STEM Center by Academic Unit FY 2013-2014**

**Energy Systems Research**

<table>
<thead>
<tr>
<th>Center/Academic Unit</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
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<td>Center/Basic Engineering/Civil and Environmental Engineering/Clay N. Hixson Student Success Center/Engineering Minority Program</td>
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<tr>
<td>Center/Chemical Engineering</td>
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<td><strong>Total Energy Center</strong></td>
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<td><strong>$7,977,889</strong></td>
<td><strong>28</strong></td>
<td><strong>$2,314,406</strong></td>
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</table>

NOTE: The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested for the same reason.
Table III (Cont.): Proposals Submitted and Awards Received through Centers of Excellence and STEM Center by Academic Unit FY 2013-2014

Manufacturing Center

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<tr>
<th>Center/Academic Unit</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
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<td><strong>Total Manufacturing Center</strong></td>
<td>36</td>
<td>$11,309,106</td>
<td>23</td>
<td>$3,252,245</td>
</tr>
</tbody>
</table>

NOTE: The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested for the same reason.
### Table III (Cont.): Proposals Submitted and Awards Received through Centers of Excellence and STEM Center by Academic Unit FY 2013-2014

#### Water Resources Center

<table>
<thead>
<tr>
<th>Center/Academic Unit</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center</td>
<td>4</td>
<td>$1,266,264</td>
<td>5</td>
<td>$1,314,062</td>
</tr>
<tr>
<td>Center/Agriculture</td>
<td>2</td>
<td>$390,481</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Biology</td>
<td>15</td>
<td>$1,372,960</td>
<td>10</td>
<td>$173,723</td>
</tr>
<tr>
<td>Center/Chemical Engineering</td>
<td>1</td>
<td>$299,999</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Chemistry/Environmental Studies</td>
<td>1</td>
<td>$496,343</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Chemistry/Mathematics/Curriculum and Instruction</td>
<td>1</td>
<td>$2,878,880</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Civil and Environmental Engineering</td>
<td>8</td>
<td>$1,423,005</td>
<td>6</td>
<td>$111,223</td>
</tr>
<tr>
<td>Center/Computer Science/Biology</td>
<td>1</td>
<td>$697,960</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Computer Science/Chemical Engineering/Chemistry</td>
<td>1</td>
<td>$214,999</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Computer Science/Civil and Environmental Engineering</td>
<td>1</td>
<td>$179,793</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Computer Science/Civil and Environmental Engineering/Earth Sciences</td>
<td>1</td>
<td>$149,998</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Cooperative Fisheries Unit</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>$206,249</td>
</tr>
<tr>
<td>Center/English</td>
<td>1</td>
<td>$20,000</td>
<td>2</td>
<td>$34,033</td>
</tr>
<tr>
<td><strong>Total Water Center</strong></td>
<td><strong>38</strong></td>
<td><strong>$9,530,483</strong></td>
<td><strong>33</strong></td>
<td><strong>$1,924,290</strong></td>
</tr>
</tbody>
</table>

**NOTE:** The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested for the same reason.
### Table III (Cont.): Proposals Submitted and Awards Received through Centers of Excellence and STEM Center by Academic Unit FY 2013-2014

**STEM Center**

<table>
<thead>
<tr>
<th>Center/Academic Unit</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Curriculum and Instruction/English</td>
<td>1</td>
<td>$3,626,263</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Curriculum and Instruction/Mathematics</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>$201,964</td>
</tr>
<tr>
<td>Center/Manufacturing and Engineering Technology</td>
<td>1</td>
<td>$199,847</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center/Physics</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>$259,194</td>
</tr>
<tr>
<td>Total STEM Center</td>
<td>2</td>
<td>$3,826,110</td>
<td>3</td>
<td>$461,158</td>
</tr>
<tr>
<td>GRAND TOTAL of STEM Center and Centers of Excellence</td>
<td>110</td>
<td>$32,643,588</td>
<td>87</td>
<td>$7,952,099</td>
</tr>
</tbody>
</table>

**NOTE:** The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested for the same reason.
Table IV: Proposals Submitted and Awards Received by Agency Classification FY 2013-2014

<table>
<thead>
<tr>
<th>Agency Classification</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>93</td>
<td>$39,923,250</td>
<td>73</td>
<td>$5,640,601</td>
</tr>
<tr>
<td>State</td>
<td>29</td>
<td>$4,991,161</td>
<td>42</td>
<td>$6,036,257</td>
</tr>
<tr>
<td>Private</td>
<td>29</td>
<td>$1,300,202</td>
<td>12</td>
<td>$366,656</td>
</tr>
<tr>
<td>Local</td>
<td>2</td>
<td>$30,553</td>
<td>2</td>
<td>$30,553</td>
</tr>
<tr>
<td>TOTAL</td>
<td>153</td>
<td>$46,245,166</td>
<td>129</td>
<td>$12,074,067</td>
</tr>
</tbody>
</table>

NOTE: The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested for the same reason.

Figure 2: Percentage Funding by Agency Classification FY 2013-2014
### Table V: Federal Awards Received by Agency FY 2013-2014

<table>
<thead>
<tr>
<th>Federal Awards</th>
<th>Amount Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor’s Highway Safety Office</td>
<td>$543,066</td>
</tr>
<tr>
<td>Great Smoky Mountains National Park</td>
<td>$17,723</td>
</tr>
<tr>
<td>Los Alamos National Laboratory</td>
<td>$4,800</td>
</tr>
<tr>
<td>NASA</td>
<td>$116,198</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>$2,303,899</td>
</tr>
<tr>
<td>National Writing Project</td>
<td>$10,000</td>
</tr>
<tr>
<td>Oak Ridge National Laboratories</td>
<td>$209,235</td>
</tr>
<tr>
<td>Office of Naval Research</td>
<td>$628,327</td>
</tr>
<tr>
<td>Tennessee Department of Education</td>
<td>$516,297</td>
</tr>
<tr>
<td>Tennessee Department of Human Services</td>
<td>$229,990</td>
</tr>
<tr>
<td>Tennessee Department of Transportation</td>
<td>$65,000</td>
</tr>
<tr>
<td>Tennessee Healthy Watershed Initiative</td>
<td>$9,375</td>
</tr>
<tr>
<td>Tennessee Small Business Development Center</td>
<td>$121,997</td>
</tr>
<tr>
<td>Tennessee Valley Authority</td>
<td>$4,000</td>
</tr>
<tr>
<td>Tennessee Wildlife Resources Agency</td>
<td>$122,850</td>
</tr>
<tr>
<td>U.S. Department of Agriculture</td>
<td>$27,737</td>
</tr>
<tr>
<td>U.S. Department of Energy</td>
<td>$493,046</td>
</tr>
<tr>
<td>U.S. Department of Interior</td>
<td>$8,181</td>
</tr>
<tr>
<td>U.S. Geological Survey</td>
<td>$123,880</td>
</tr>
<tr>
<td>UT-Battelle, LLC</td>
<td>$85,000</td>
</tr>
<tr>
<td><strong>Total Federal Dollars</strong></td>
<td><strong>$5,640,601</strong></td>
</tr>
</tbody>
</table>
### Table VI: Proposals Submitted and Awards Received by Activity FY 2013-2014

<table>
<thead>
<tr>
<th>Activity/Use</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>109</td>
<td>$31,245,912</td>
<td>84</td>
<td>$8,345,113</td>
</tr>
<tr>
<td>Instruction</td>
<td>12</td>
<td>$8,511,847</td>
<td>12</td>
<td>$681,632</td>
</tr>
<tr>
<td>Student Services</td>
<td>3</td>
<td>$3,664,044</td>
<td>3</td>
<td>$61,225</td>
</tr>
<tr>
<td>Public Service</td>
<td>20</td>
<td>$1,294,677</td>
<td>25</td>
<td>$2,439,103</td>
</tr>
<tr>
<td>Capital Projects</td>
<td>3</td>
<td>$1,173,221</td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Academic Support</td>
<td>5</td>
<td>$307,765</td>
<td>3</td>
<td>$240,100</td>
</tr>
<tr>
<td>Scholarships/</td>
<td>1</td>
<td>$47,700</td>
<td>2</td>
<td>$306,894</td>
</tr>
<tr>
<td>Fellowships</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>153</strong></td>
<td><strong>$46,245,166</strong></td>
<td><strong>129</strong></td>
<td><strong>$12,074,067</strong></td>
</tr>
</tbody>
</table>

NOTE: The number of awards received may be greater than the number of proposals submitted because proposals submitted in previous years could be awarded in the current year. Similarly, the amount funded may be greater than the current requested amount for the same reason.

### Figure 3: Percentage Funding by Activity FY 2013-2014
### Table VII: Proposals Submitted and Awards Received FY 2010-2014

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Proposals Submitted</th>
<th>Amount Requested</th>
<th>Awards Received</th>
<th>Amount Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>169</td>
<td>$60,770,653</td>
<td>153</td>
<td>$17,071,437</td>
</tr>
<tr>
<td>2011</td>
<td>148</td>
<td>$28,145,822</td>
<td>133</td>
<td>$13,784,423</td>
</tr>
<tr>
<td>2012</td>
<td>136</td>
<td>$30,525,667</td>
<td>131</td>
<td>$13,084,966</td>
</tr>
<tr>
<td>2013</td>
<td>125</td>
<td>$37,315,847</td>
<td>115</td>
<td>$11,974,879</td>
</tr>
<tr>
<td>2014</td>
<td>153</td>
<td>$46,245,166</td>
<td>129</td>
<td>$12,074,067</td>
</tr>
</tbody>
</table>

### Figure 4: External Funds Received FY 2010-2014

![Bar chart showing external funds received over the years]
### Table VIII: Awards Received and Award Amounts by Classification FY 2010-2014

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Federal</th>
<th>State</th>
<th>Private</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Award Amount</td>
<td>No.</td>
<td>Award Amount</td>
</tr>
<tr>
<td>2010</td>
<td>89</td>
<td>$9,914,695</td>
<td>48</td>
<td>$6,631,280</td>
</tr>
<tr>
<td>2011</td>
<td>77</td>
<td>$6,485,866</td>
<td>48</td>
<td>$7,036,396</td>
</tr>
<tr>
<td>2012</td>
<td>78</td>
<td>$6,439,549</td>
<td>40</td>
<td>$6,335,278</td>
</tr>
<tr>
<td>2013</td>
<td>70</td>
<td>$6,003,853</td>
<td>34</td>
<td>$5,768,149</td>
</tr>
<tr>
<td>2014</td>
<td>73</td>
<td>$5,640,601</td>
<td>42</td>
<td>$6,036,257</td>
</tr>
</tbody>
</table>

### Figure 5: Funding Received by Classification FY 2010-2014
Table IX: Awards Received and Award Amounts by Type of Activity
FY 2010-2014

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Research No.</th>
<th>Award Amount</th>
<th>Public Service No.</th>
<th>Award Amount</th>
<th>Instruction No.</th>
<th>Award Amount</th>
<th>Operation/Maintenance No.</th>
<th>Award Amount</th>
<th>Academic Support No.</th>
<th>Award Amount</th>
<th>Institutional Support No.</th>
<th>Award Amount</th>
<th>Capital Project No.</th>
<th>Award Amount</th>
<th>Fellowship/Scholarships/Student Services No.</th>
<th>Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>99</td>
<td>$11,619,395</td>
<td>29</td>
<td>$2,572,610</td>
<td>11</td>
<td>$1,003,794</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>$804,795</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>$1,038,323</td>
<td>2</td>
<td>$32,520</td>
</tr>
<tr>
<td>2011</td>
<td>83</td>
<td>$8,869,731</td>
<td>34</td>
<td>$3,667,760</td>
<td>9</td>
<td>$652,526</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>$6,960</td>
<td>1</td>
<td>$6,227</td>
<td>2</td>
<td>$550,000</td>
<td>3</td>
<td>$31,219</td>
</tr>
<tr>
<td>2012</td>
<td>75</td>
<td>$7,779,893</td>
<td>35</td>
<td>$2,932,169</td>
<td>17</td>
<td>$2,245,626</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>$127,278</td>
</tr>
<tr>
<td>2013</td>
<td>67</td>
<td>$7,436,337</td>
<td>34</td>
<td>$3,013,522</td>
<td>8</td>
<td>$1,037,411</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>$40,000</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>$250,000</td>
<td>4</td>
<td>$197,609</td>
</tr>
<tr>
<td>2014</td>
<td>84</td>
<td>$8,345,113</td>
<td>25</td>
<td>$2,439,103</td>
<td>12</td>
<td>$681,632</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>$240,100</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>$368,119</td>
</tr>
</tbody>
</table>
Research Compliance

The Office of Research is responsible for monitoring compliance with the federal policies that regulate research activities in the following areas: responsible conduct of research, research ethics, human subjects research, the humane care of laboratory animals used in research and experimentation, the management of conflicts of interest in research, research integrity, export laws, and other areas of oversight.

Ultimately, it is the responsibility of the individual investigators, with the assistance from the Office of Research, to comply with all applicable federal, state, and funding agency guidelines in implementing their grants and contracts.

General Compliance Support

Several University standing committees, as well as other special committees, are regulated federally and must meet certain compliance criteria. These committees are, in general, research related and are associated with the Office of Research. The Associate Vice President serves as the Executive Officer for these committees, which include: the Institutional Animal Care and Use Committee, the Institutional Review Board for the Protection of Human Subjects, the Intellectual Property Advisory Committee, the Faculty Research Committee, the Caplenor Faculty Research Award Committee, and the University Research Advisory Committee. The annual report of each of these committees is on file in the Office of Research and Graduate Studies.
The Institutional Committee for the Care and Use of Laboratory Animals in Experimentation provides for and protects the welfare of laboratory animals used for research and pedagogy as set forth by the University and in accordance with the Public Health Service Act (PHS Act) mandated by the Health Research Extension Act of 1985, Public Law 99-158, and its amendments from the U.S. Department of Agriculture, 9 CFR 9, Parts 1-3. The committee membership includes faculty, administrators, a veterinarian, and a community representative. The committee reports to the Administrative Council.

**Meeting Dates**

September 12, 2013            March 20, 2014

**Committee Members**

Dr. Chris Brown, Biology
Dr. Bruce Greene, Agriculture
Dr. Steve Hayslette, Biology (Chair)
Ms. Tammy Howard, Nursing
Dr. Christy Killman, Health and Physical Education
Dr. Jessica Matson, Civil and Environmental Engineering
Dr. Charles McCaskey (ethicist)
Dr. Tyler Verble (veterinarian)
Dr. Francis Otuonye (Executive Officer)

**Committee Actions**

The committee performed laboratory inspections in September 2013 and April 2014.
The Institutional Review Committee for Human Subjects serves as the review board in accordance with the requirements for the protection of human subjects as set forth by the regulations created by Congress (Code of Federal Regulations, Title 45, Part 46). The committee is composed of faculty, administrators, and persons not affiliated with the University. It reports to the Administrative Council. The use of human subjects in any experimental environment, whether it be research (funded or nonfunded), or other scholarly activities such as surveys, questionnaires, and classroom experiences, must be reviewed and approved by the committee.

**Meeting Dates**

September 9, 2013  
November 11, 2013  
January 27, 2014  
April 14, 2014

**Committee Members**

Dr. Meral Anitsal, Economics and Marketing; Dr. Chris Burgin, Counseling and Psychology; Dr. George Chitiyo, Curriculum and Instruction; Dr. Michael Clark, Music and Art (Chair); Dr. Jann Cupp, Counseling and Psychology; Dr. Janet Isbell, Curriculum and Instruction  
Dr. Patricia McGee, Community Representative; Dr. Susan Piras, Nursing; Mr. James Rogers, Community Representative; Dr. Robby Sanders, Chemical Engineering; Dr. Steven Seiler, Sociology and Political Science; Dr. Lisa Zagumny, Curriculum and Instruction; Dr. Francis Otuonye, Executive Officer

**Committee Actions**

During the 2013-2014 academic year, the Office of Research processed 245 exempt proposals. The IRB did not conduct any full reviews since none of the proposals met federal guidelines for full review.

The IRB reviewed 25 proposals for expedited review. As of March 18, 2014, 18 proposals were approved on initial submission or with minor revisions.
Tennessee Technological University acknowledges that the faculty and staff may, from time to time, conceive of an idea or discover a process that could lead to the development of a patent or the production of copyrightable materials. The University encourages such activities by the faculty and staff and recognizes its responsibility to see that ideas and discoveries are administered for the best interest of all parties concerned, including the public. The University has established an Intellectual Property Advisory Committee for the purpose of advising the President on all matters involving patents and copyrights. Membership is composed of faculty and staff experienced in research, innovation, and the production of copyrightable materials. A majority of the membership is from the faculty.

Meeting Dates

September 3, 2013; October 1, 2013; November 12, 2013; February 4, 2014; March 4, 2014

Committee Members

Dr. Joshua Aikens, Student; Dr. Michael Allen, Mathematics; Dr. Ali Alouani, Electrical and Computer Engineering; Dr. Michael Best, Agriculture; Dr. Sherrie Foster, Counseling and Psychology; Dr. Steven Frye, Interdisciplinary Studies; Dr. Kim Hanna, Nursing; Ms. Ann Manginelli, Library; Dr. Scott Northrup, Chemistry; Mr. Daniel Tribble, Student; Dr. Ken Wiant, Economics, Finance and Marketing (Chair); Dr. Francis Otuonye, Executive Officer

Committee Actions

The Committee approved requests to file provisional patents on “Shrinkage Reducing Admixtures for Portland Cement Concrete” (J. Biernacki and D. Visco) and “Process for Using Protozoa for Triglyceride Production” (S. Berk).

The following provisional applications were converted to utility applications: (1) “Method to Optimize Biodiesel Production” (J. Thompson) and (2) “Mechanically Enhanced Separation of Reaction Products in Biodiesel Production” (J. Thompson).

The Committee received the following invention disclosures: (1) “Refillable drug diffusing staple for wound closure” (Knowles); (2) “M.O.R.E. Assistance Technology: Measure Then Obtain Needed Information to Resuscitate Everyone” (Maffett); (3) “Robust Acoustic Scanning System for Simultaneous Mapping and Localization” (S. Canfield and D.A. Bryant); and (4) “Fluidic System for High Throughput Preparation of Polymeric Microparticles and Nanoparticles” (H. Stretz).
A license agreement is pending between Tennessee Tech and Promethia Labs to license technology developed by Dr. Holly Stretz and Dr. Jeff Thompson.

A patent was issued for Dr. Stephen Canfield’s technology entitled “Tracked Climbing Machine with Complaint Suspension Apparatus” (U.S. 8,567,536, B1).

The Committee voted to change the name of the committee to Intellectual Property Advisory Committee to be aligned and consistent with the Tennessee Board of Regents.

The Committee revised the Invention Disclosure Form to provide more exhaustive information to facilitate prior art searches.

The existing TTU Policies and Procedures on intellectual property were revised to be consistent with Tennessee Board of Regents policies.

Per the agreement with Robotic Technologies of Tennessee, TTU will receive $3,025 from royalty income. The inventor will not receive royalties until all funds that were expended or patent filing have been recovered.

A complete listing of intellectual property activity for 2013-14 is approved in Appendix B.
The Faculty Research Program was established in the fall quarter of 1963 to (1) stimulate interest in research on the part of the faculty; (2) provide institutional assistance to faculty members who wish to undertake research projects; and (3) assist in the dissemination of information developed in faculty research projects. The research program provides support for investigations of new research areas for the faculty members involved. The results of such support are expected to be publications or other dissemination of results and, where appropriate, proposals for external funding. It is anticipated that the results of faculty research will filter downward into the classroom, particularly to graduate courses. The Faculty Research Program is coordinated by the Faculty Research Committee. This committee consists of nine faculty members with the Associate Vice President of Research serving as Executive Officer.

**Meeting Dates**

- October 13, 2013
- January 30, 2014
- February 20, 2014
- March 6, 2014

**Committee Members**

Dr. Curtis Armstrong, Decision Sciences and Management; Dr. Julia Baker, Foreign Languages (Chair); Dr. William Eberle, Computer Science; Dr. John Harwood, Chemistry; Dr. Ada Haynes, Sociology and Political Science; Dr. Jane Liu, Civil and Environmental Engineering; Dr. Bedelia Russell, Nursing; Dr. Deborah Setliff, Curriculum and Instruction; Dr. Melinda Swafford, Human Ecology; Dr. Francis Otuonye, Executive Officer
Committee Actions

During the 2013-14 fiscal year, the Committee revised the grant program into three tracks:

1. Track I is intended to support (a) research that would lead to publication(s) in refereed journal(s) or other nationally recognized forms of dissemination appropriate to the discipline and (b) travel to conferences to present papers or other creative works.

2. Track II is intended to support travel to meet with grant program managers to discuss ideas for future proposal submissions that lead to external funding.

3. Track III is intended to provide seed funding to initiate and develop research projects or programs that lead to external funding.

The Committee awarded nine Track I proposals involving 10 faculty members for a total amount of $26,250 and seven Track III proposals involving nine faculty members for a total of $69,438. No Track II proposals were awarded.

The Committee held two proposal development workshops on November 21, 2013.

A complete listing of the Faculty Research Awards for 2013-14 is provided in Appendix C.
The Caplenor Faculty Research Award, established in 1984 in honor of the late Dr. Charles Donald Caplenor, former Associate Vice President for Research and Dean of Instructional Development, is awarded annually to one member of the faculty of Tennessee Technological University for outstanding research accomplished while employed at the University.

Meeting Dates
September 5, 2013
November 7, 2013

Committee Members
Dr. Deborah Barnard, Foreign Languages
Dr. Billye Foster, School of Agriculture
Dr. Tor Guimaraes, Business Administration
Dr. Melissa Geist, Nursing
Dr. Faisal Hossain, Civil and Environmental Engineering (Chair)
Dr. Joseph Ojo, Electrical Engineering
Dr. Sandi J.W. Smith, Curriculum and Instruction
Dr. Robert Qiu
Dr. Francis Otuonye, Executive Officer

Committee Actions
Dr. Ying Zhang, Mechanical Engineering, was the recipient of the 2013-14 Caplenor Faculty Research Award.
The University Research Advisory Committee (URAC) advises the President and Provost on strategies to stimulate growth in research and externally funded scholarly activities within the university community.

The Committee advises on the development of a comprehensive structure and network of activities to foster externally funded scholarly activities. The Committee report directly to either the Academic Council or Administrative Council, or both, depending on the matter at hand. In carrying out its function, the Committee will:

A. Identify strengths, weaknesses, opportunities and challenges to research growth and externally funded scholarly activities at TTU;

B. Identify emerging research opportunities anticipated across the academic disciplines;

C. Make recommendations regarding intellectual and infrastructure needs required to capitalize on major research opportunities;

D. Develop plans and make recommendations for accessing, supporting and sustaining existing and emerging research thrust areas;

E. Review current practices in research administration and recommend strategies to foster research growth; and

F. Make recommendations regarding the commercialization of research and intellectual property issues.
University Research Advisory Committee ~ 2013-2014 (cont.)

Meeting Dates

September 10, 2013
November 12, 2013
February 11, 2014
March 18, 2014
May 13, 2014

Committee Members

Dr. Melinda Anderson, Human Ecology; Dr. Holly Anthony, Curriculum and Instruction;
Dr. Stephen Canfield, Mechanical Engineering; Dr. Kenneth Currie, Manufacturing Center;
Dr. Bill Eberle, Computer Science; Dr. Steven Frye, Interdisciplinary Studies;
Dr. Tor Guimaraes, J.E. Owens Chair of Excellence; Ms. Ashley Humphrey, Student;
Dr. Hayden Mattingly, Biology; Dr. Vahid Motevalli, College of Engineering;
Ms. Caylin Paul, Student; Dr. P.K. Rajan, Energy Center; Dr. Barry Stein, Counseling and Psychology;
Dr. Holly Stretz, Chemical Engineering; Dr. Bharat Soni, Executive Officer

Committee Actions

The Committee continued the work on implementing various action items laid out in the Strategic Plan for Research adopted on April 10, 2012.

Dr. Soni spoke to the Committee and shared his own personal perspective on research at TTU.

The Committee worked with Dr. Soni on defining the role of URAC in relationship to the Flight Plan and the renewed emphasis on research and scholarly activity.

Please see Appendix D for previous years’ University Research Advisory Committee meeting dates, members and minutes.
Appendices

Appendix A gives the total amount of research funds brought into the University from external sources by college/area, departments/units within a given college, the faculty/administrators/staff responsible for each proposal, the funding agency, and the amount of funding received.

Appendix B summarizes the intellectual property activity in the areas of patents and copyrights.

Appendix C summarizes the Faculty Research Committee awards.

Appendix D includes information from previous years’ University Research Advisory Committee meetings.
### Administration

3 Projects; 3 Faculty  
$140,500

**Academic Affairs**

**PI** - Sharon Huo  
Developing Rating Aids for the Evaluation of Existing Concrete Box Culverts in Tennessee  
Tennessee Department of Transportation  
$5,000.00  
**Co-PI(s):**  
Center: Energy  
Enhance and Improve Rating Aids for the Evaluation of Existing Concrete Box/Slab Culverts  
(Phase Tennessee Department of Transportation  
$135,000.00  
**Co-PI(s):**  
Center: Energy

**Athletics**

**PI** - Frank Davis  
Wal-Mart Corporate Funding  
Wal-Mart  
$500.00  
**Co-PI(s):** Tammie McMillan, Athletics  
Center:

### Agriculture and Human Ecology

3 Projects; 3 Faculty  
$574,549

**Agriculture**

**PI** - Ben Byler  
Tennessee Association FFA Camp Clements 2011-15  
Tennessee Department of Education  
$109,759.00  
**Co-PI(s):**  
Center:

**Human Ecology**

**PI** - Leeann Jolley-Shipley  
Upper Cumberland Child Care Resource and Referral  
Signal Centers of Chattanooga  
$229,990.00  
**Co-PI(s):**  
Center:

**PI** - Melinda Swafford  
Tennessee Early Childhood Training Alliance  
Tennessee State University  
$234,800.00  
**Co-PI(s):**  
Center:
## Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

### Arts and Sciences

**27 Projects; 20 Faculty**

**$1,203,599**

**Biology**

- **PI - Bradford Cook**
  - Assessment of Southern Appalachian Brook Trout Propagation as a Tool for Restoring Tennessee Populations
  - Tennessee Wildlife Resources Agency
  - $28,000.00
  - **Co-PI(s):**
  - Center: Water

- **PI - Colin Shea**
  - Development of An Adaptive Management Framework for the Conservation of the New England Contontail (Sylvilagus transitionalis)
  - U. S. Geological Survey
  - $15,003.00
  - **Co-PI(s):**
  - Center: Water

- **PI - Hayden Mattingly**
  - Life History of the Obey Crayfish, Cambarus obeyensis: Implications for Species Conservation
  - Tennessee Wildlife Resources Agency
  - $15,000.00
  - **Co-PI(s):**
  - Center: Water

- **PI - Justin Murdock**
  - Microbial Roles in Water Quality Improvement
  - U. S. Department of Agriculture
  - $9,737.00
  - **Co-PI(s):**
  - Center: Water

  - Determining Didymosphenia geminata (Didymo) Distribution and Colonization Potential in Tennessee Streams
  - Great Smoky Mountains National Park
  - $17,723.00
  - **Co-PI(s):**
  - Center: Water

- **PI - Thomas Roberts**
  - Develop Training Materials for Tennessee Rapid Assessment Method (TRAM) for Wetlands
  - Tennessee Department of Environment and Conservation
  - $70,000.00
  - **Co-PI(s):** Kenneth Morgan, Biology
  - Center: Water
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014
(Principal Investigator/Co-PI(s))

Arts and Sciences (cont.)

Monitoring Hydrologic and Vegetative Conditions at the Three River Mitigation Bank in Obion Tennessee Wildlife Resources Agency
$16,260.00  
Co-PI(s): Kenneth Morgan; Biology
Center: Water
Collecting Biological Data at TWRA Deer Check Stations
Tennessee Wildlife Resources Agency
$2,000.00
Co-PI(s):
Center: Water

Chemistry

PI - Dale Ensor
Radio Chemical Separation for Environmental and Nuclear Applications
UT-Battelle, LLC
$85,000.00
Co-PI(s):
Center: Water

PI - Jesse Carrick
American Chemical Society Division of Organic Chemistry Summer Undergraduate Research Fellowship Application
American Chemical Society
$5,000.00
Co-PI(s):
Center:

Cooperative Fisheries Unit

PI - James Layzer
Response of Endangered Mussels to Decreased Flows
U. S. Geological Survey
$9,257.00
Co-PI(s):
Center: Water

PI - Phillip Bettoli
Implementation and Optimization of Structured Design Making Models for Regulated Rivers in Tennessee
U. S. Geological Survey
$60,520.00
Co-PI(s):
Center: Water
Arts and Sciences (cont.)

Spatial and Temporal Distribution of Fish in and Near a Heated Discharge
Electric Power Research Institute
$22,441.00
Co-PI(s):
Center: Water
TWRA Base Funds
Tennessee Wildlife Resources Agency
$30,000.00
Co-PI(s):
Center: Evaluation of Sport Fisheries
Tennessee Wildlife Resources Agency
$50,000.00
Co-PI(s):
Center: Water
Stocking Assessment of Sport Fish
Tennessee Wildlife Resources Agency
$55,850.00
Co-PI(s):
Center: Water
Occupancy Modeling for Aquatic Threatened, Endangered, and Invasive Species Across the Southeastern United States
U. S. Department of the Interior Fish and Wildlife Service
$8,181.00
Co-PI(s):
Center: Water

*English*

PI - Anthony Baker
Tennessee Upper Cumberland Writing Project
National Writing Project
$10,000.00
Co-PI(s):
Center: Water

PI - Elizabeth Powell
Uncovering Tacit Knowledge About Gender, Communication and Interpersonal Interactions in Engineering
Carnegie Mellon University
$24,033.00
Co-PI(s):
Center: Water
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

Arts and Sciences (cont.)

Mathematics

PI -  Allan Mills
   STEP: Math Success for STEM Majors
   National Science Foundation
   $201,964.00
   Co-PI(s): Holly Anthony, Curriculum and Instruction
   Center: STEM

PI -  Troy Brachey
   TBR Course Revitalization Initiative MATH 1130
   Tennessee Board of Regents
   $13,494.00
   Co-PI(s):
   Center:

Physics

PI -  Mary Kidd
   Scintillator-Layered Imaging Microscope for Environmental Research
   Los Alamos National Laboratory
   $4,800.00
   Co-PI(s):
   Center:

PI -  Paula Engelhardt
   Enhancing the Learner-Centered Environment for Algebra-based Physics (LEAP) Curriculum for Diverse Student Populations
   National Science Foundation
   $85,285.00
   Co-PI(s): Stephen Robinson, Physics
   Center:

PI -  Raymond Kozub
   Nuclear Physics with Radioactive Ion Beams
   U. S. Department of Energy
   $64,000.00
   Co-PI(s):
   Center:

PI -  Sakir Ayik
   Studies of Fluctuation Processes in Nuclear Collisions
   U. S. Department of Energy
   $35,000.00
   Co-PI(s):
   Center:
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014
(Principal Investigator/Co-PI(s))

Arts and Sciences (cont.)

PI - Stephen Robinson
TTU STEM Majors for Rural Teaching (TTU-SMaRT)
National Science Foundation
$259,194.00
Co-PI(s): Holly Anthony, Curriculum and Instruction
Center: STEM
Developing a Large Enrollment, Guided Inquiry, Conceptual Physics Course
San Diego State University Research Foundation
$5,857.00
Co-PI(s):
Center:
### Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014

(Principal Investigator/Co-PI(s))

<table>
<thead>
<tr>
<th>College/Area</th>
<th>Department</th>
<th>Investigator(s)</th>
<th>Project Title</th>
<th>Funding Agency</th>
<th>Funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business</strong></td>
<td><strong>9 Projects; 7 Faculty</strong></td>
<td><strong>$1,456,121</strong></td>
<td><strong>Business Media Center</strong></td>
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<td><strong>PI - Kevin Liska</strong></td>
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<td></td>
<td>Governor's Highway Safety Office Marketing Management</td>
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<td>Governor's Highway Safety Office</td>
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<td>$400,998.00</td>
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<td></td>
<td>Co-PI(s):</td>
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<td>Center: TBR Marketing RODP Campaign</td>
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<td></td>
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<td></td>
<td>Tennessee Board of Regents</td>
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<td>$598,286.00</td>
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<tr>
<td></td>
<td>Co-PI(s): Ferdinand Difurio; Economics, Finance and Marketing; J. D. Weinrauch; Economics, Finance and Marketing</td>
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<td>Center: Perkins IV-1014</td>
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<td>Tennessee Board of Regents</td>
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<td>$7,000.00</td>
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<td>Co-PI(s):</td>
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<td>Center: Tennessee Transfer Guarantee Project</td>
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<td>Tennessee Board of Regents</td>
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<td>$50,000.00</td>
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<td>Co-PI(s): Julie Brewer; Business Media Center</td>
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<td>Center: Governor's Highway Safety Office Ollie the Otter</td>
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<td>Governor's Highway Safety Office</td>
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<td>Co-PI(s):</td>
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<td>Center: Technology Center Marketing</td>
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<td>Tennessee Board of Regents</td>
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<td>$40,000.00</td>
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<td></td>
<td>Co-PI(s):</td>
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<td>Center:</td>
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**Decision Sciences and Management**

| PI - Curtis Armstrong |  |  |  |  |  |
| Governor's School for Business and IT Leadership |  |  | Tennessee Department of Education |  | $91,772.00 |
| Co-PI(s): |  |  | Center:  |  |  |
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

Business (cont.)

Small Business Development Center

PI - Jennifer Dangelo
TSBDC-TTU Online Center
Tennessee Small Business Development Center
$121,997.00
Co-PI(s):
Center:
TVA Diversity Alliance Partnership
Tennessee Valley Authority
$4,000.00
Co-PI(s): John Woodard, Small Business Development Center
Center:
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

### Education

<table>
<thead>
<tr>
<th>College/Area</th>
<th>Department</th>
<th>Investigator(s)</th>
<th>Project Title</th>
<th>Funding Agency</th>
<th>Funding Amount</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 Projects; 17 Faculty</td>
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<td>$1,590,980</td>
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<tr>
<td><strong>Art</strong></td>
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<td>Kimberly Winkle</td>
<td>Fall 2014 Course Revitalization Initiative-Music 1030</td>
<td>Tennessee Board of Regents</td>
<td>$9,000.00</td>
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<td>Co-PI(s): Jennifer Shank, Music</td>
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<td>Adam Haynes, Sociology and Political Science: Michael Redding, Biology</td>
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<td>Counseling and Psychology</td>
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<td>Barry Stein</td>
<td>CCLI: Expanding the use of the CAT: Assessing and Improving Critical Thinking</td>
<td>National Science Foundation</td>
<td>$663,854.00</td>
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<td>Co-PI(s): Ada Haynes, Sociology and Political Science: Michael Redding, Biology</td>
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<tr>
<td>Curriculum and Instruction</td>
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<td>George Chitiyo</td>
<td>Access and Diversity Grant: Improving Social Engagement and Academic Achievement among Minority Students</td>
<td>Tennessee Board of Regents</td>
<td>$27,225.00</td>
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<td>Co-PI(s): Lisa Zagumny, Curriculum and Instruction</td>
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<td>Helen Dainty</td>
<td>TDE Special Education Institute</td>
<td>Tennessee Department of Education</td>
<td>$211,297.00</td>
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<td>Co-PI(s): Laura Graves, Curriculum and Instruction</td>
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<td>Janet Isbell</td>
<td>Opening the Secret City: Tapping Resources from a Historic Research Lab to Building Reading Rigor in English, History, and Science</td>
<td>Tennessee Higher Education Commission</td>
<td>$69,931.00</td>
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<td>Co-PI(s): Julie C. Baker, Curriculum and Instruction; Andrew Callender, Chemistry; Jeffery Roberts, History</td>
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</tbody>
</table>
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

Education (cont.)

PI - Jason Beach
   Special Ed Programs and Services, Assistive Technology Grant, 2013-16
   Tennessee Department of Education
   $5,000.00
   Co-PI(s):
   Center:

PI - Julie Stepp
   For Your Informational Text: Exploring, Evaluating, and Writing with Common Core Collaborations Starring Librarians and Teachers
   Tennessee Higher Education Commission
   $74,966.00
   Co-PI(s): Jane Baker, Curriculum and Instruction
   Center:

PI - Kristen Pennycuff-Trent
   What's So Critical About Common Core and Next Generation Science Standards? Exploring Close Reading and Technical Writing in Science
   Tennessee Higher Education Commission
   $75,000.00
   Co-PI(s):
   Center:

PI - Martha Howard
   Tennessee Early Childhood Pilot Program
   Putnam County School Board
   $86,532.00
   Co-PI(s):
   Center:
   Access and Diversity Grant: The Family and Schooling Literacy Program: Families and Schools Generating Close Readings and Critical Responses to Global and Informational Texts
   Tennessee Board of Regents
   $60,000.00
   Co-PI(s):
   Center:
   Healthy Start for Upper Cumberland Families and Young Children
   Stephens Center
   $8,175.00
   Co-PI(s):
   Center:
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014
(Principal Investigator/Co-PI(s))

Engineering  46 Projects; 36 Faculty  $7,108,318

Chemical Engineering

PI - Joseph Biernacki
PFI - Air Technology Translation-Computationally Designed Shrinkage Reducing Admixtures for Concrete
National Science Foundation
$123,331.00
Co-PI(s):
Center: Energy
REU Supplement: PFI: AIR Technology Translation-Computationally Designed Shrinkage Reducing Admixtures for Concrete
National Science Foundation
$5,500.00
Co-PI(s):
Center: Energy
I-Corps: Shrinkage Reducing Admixture Business Development
National Science Foundation
$50,000.00
Co-PI(s):
Center: Energy
A Multi-Scale Environmental and Kinetics Study on the Pyrolysis of Sustainable Biomass Feedstock
National Science Foundation
$154,526.00
Co-PI(s): Scott Northrup, Chemistry; Lachelle Norris, Sociology and Political Science
Center: Manufacturing

PI - Pedro Arce
Schlumberger Foundation, Inc. Fellowship
Schlumberger Foundation, Inc.
$47,700.00
Co-PI(s):
Center:
Civil and Environmental Engineering

PI - Alfred Kalyanapu
Analyzing Precipitation Patterns Along I-40 Stretch Near Mt. Juliet, Tennessee
Tennessee Department of Transportation
$7,425.00
Co-PI(s):
Center: Water
Analyzing Precipitation Patterns Along I-40 Stretch Near Mt. Juliet, Tennessee
Tennessee Department of Transportation
$825.00
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

Co-PI(s):
Center: Water
Ivanhoe Fellowship
Ivanhoe Foundation
$5,000.00
Co-PI(s):
Center: Water
Development of Obed Watershed Water Resources Planning Tools and Monitoring Procedures to Assess Future Economic Growth
Tennessee Healthy Watershed Initiative
$9,375.00
Co-PI(s):
Center: Water
PI - Daniel Badoe
Development of Tennessee Travel Demand Model Users’ Group
University of Tennessee-Knoxville
$10,300.00
Co-PI(s):
Center: Energy
PI - David Huddleston
Understanding Atmospheric Rivers, Terrain and Anthropogenic Land Cover Changes on Storm Modification Around Large Dams Using Multi-Sensor Satellite Data, Cloud Tracking and Numerical Modeling
NASA
$27,600.00
Co-PI(s):
Center: Water
TBR Course Revitalization Initiative for CEE3110 Mechanics of Materials for Fall 2014-Spring 2015
Tennessee Board of Regents
$13,500.00
Co-PI(s): Jane Liu and Guillermo Ramirez, Civil and Environmental Engineering
Center: Energy
NASA
$27,600.00
Co-PI(s):
Center: Energy
Tennessee Board of Regents
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

$13,500.00
Co-PI(s): Jane Liu, Civil and Environmental Engineering
Center: Energy
PI - Faisal Hossain
A Satellite-based Early Warning, Mapping and Post-Disaster Visualization System for Water Resources of Low-Lying Deltas of the Hindu Kush-Himalayan Region
NASA
$60,998.00
Co-PI(s):
Center: Water
PI - Jane Liu
Biaxial Material Model of Semi-Brittle Polymers
United Launch Alliance
$15,200.00
Co-PI(s): John Peddieson, Mechanical Engineering
Center: Energy
PI - L. K. Crouch
Determining Concrete Chloride Permeability Rapidly and Effectively
Tennessee Department of Transportation
$240,000.00
Co-PI(s): Daniel Badoe, Civil and Environmental Engineering
Center: Energy
Developing a TDOT Class S-LH (Lower Heat) PCC Mixture Specification
Tennessee Department of Transportation
$60,000.00
Co-PI(s):
Center: Energy
Development of a TDOT Class D-LP (Lower Permeability) Concrete Mixture
Tennessee Department of Transportation
$10,000.00
Co-PI(s): Benjamin Mohr, Civil and Environmental Engineering
Center: Energy
PI - Matthew Yarnold
Structural Health Monitoring of the Tacony-Palmyra Bridge Arch Span
Intelligent Infrastructure Systems
$20,000.00
Co-PI(s):
Center: Energy
Computer Science
PI - Ambareen Siraj
Capacity Building in Cybersecurity: Broadening Participation of Women in Cybersecurity through Women in Cybersecurity Conference and Professional Development
National Science Foundation
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

- Co-PI(s): $123,343.00
  - Center: Manufacturing
  - SeeKnitKit (Security Knitting Kit): Integrating Security Into Traditional Computer Science Courses
  - National Science Foundation
  - $94,868.00
  - Co-PI(s): Sheikh Ghafoor, Computer Science

- PI: Douglas Talbert
  - Governor's School for Emerging Technologies
  - Tennessee Department of Education
  - $133,973.00
  - Co-PI(s): Chris Wilson, Mechanical Engineering

- PI: Stephen Scott
  - Joint Faculty Agreement with ORNL
  - Oak Ridge National Laboratories
  - $161,235.00
  - Co-PI(s):
    - Center: Manufacturing
    - ORNL Graduate Students
    - Oak Ridge National Laboratory
    - $38,000.00

- PI: William Eberle
  - Healthcare 180 Visualizer
  - Healthcare 180, LLC
  - $80,000.00
  - Co-PI(s): Douglas Talbert, Computer Science
  - Anomaly Detection in Graph Streams
  - National Science Foundation
  - $68,518.00

- Co-PI(s):
  - Center: Manufacturing

**Electrical and Computer Engineering**

- PI: Ali Alouani
  - Design and Development of Wireless Low Cost Power Data Loggers
  - Oak Ridge National Laboratory
  - $10,000.00
  - Co-PI(s):
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014 (Principal Investigator/Co-PI(s))

PI - Joseph Ojo  
Center: Energy  
More Electric Integrated Power Systems with Multiphase Motors and Generators  
Office of Naval Research  
$508,327.00  
Co-PI(s):  
PI - R. Wayne Johnson  
Center: Energy  
Auburn Technological Advisory  
Auburn University  
$105,278.00  
Co-PI(s):  
PI - P. K. Rajan  
Center: Energy  
Power-Test-Service Account various  
$3,850.00  
Co-PI(s):  
PI - Joseph Rencis  
Engineering Administration  
Board of Architectural and Engineering Examiners Grant  
Tennessee Board of Architectural and Engineering Examiners  
$39,709.00  
Co-PI(s):  
Center:  
Tennessee Louis Stokes Alliances for Minority Participation (TLSAMP)  
Tennessee State University  
$29,000.00  
Co-PI(s):  
L. K. Crouch; Civil and Environmental Engineering; Stephen Idem, Mechanical Engineering  
Center:  
Manufacturing and Engineering Technology
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014
(Principal Investigator/Co-PI(s))

PI - Meenakshi Sundaram
UT-CIS Contract for Employee Services
The University of Tennessee Center for Industrial Services
$60,000.00
Co-PI(s):
Center: Manufacturing
PI - Cynthia Rice
Components and Devices for Energy Storage and Conversion
University of Tennessee
$176,097.00
Co-PI(s):
Center: Manufacturing
PI - Kenneth Currie
Center for Manufacturing Research
Tennessee Higher Education Commission
$1,541,100.00
Co-PI(s):
Center: Manufacturing
PI - Robert Qiu
Design, Analysis and Implementation of Social Interactions in Cognitive Radio Networks
National Science Foundation
$47,031.00
Co-PI(s):
Center: Manufacturing
Mechanical Engineering
PI - Glenn Cunningham
Public-Private Partnership for a Comprehensive Workforce Development Plan to Stimulate Industrial Energy Efficiency and Demand Reduction
U. S. Department of Energy
$264,000.00
Co-PI(s): Kenneth Currie, Manufacturing Center
Center: Manufacturing
PI - Jie Cui
Wind Power-Multi-Level Control, Intelligent Grid Integration and Real-Time Digital Simulation
National Science Foundation
$80,000.00
Appendix A (cont.): Externally Funded Projects by College/Area, Department, Investigator(s), Project Title, Funding Agency and Funding Amount ~ FY 2013-2014
(Principal Investigator/Co-PI(s))

**Co-PI(s):**
Center: Energy  
PI - Stephen Canfield  
Enabling Families, Infants and Toddlers Through Technology: Merging Early Intervention and Mechanical Engineering (EIME) 2012-15  
Tennessee Department of Education  
$14,000.00  
**Co-PI(s):** Hwan-Sik Yoon, Mechanical Engineering  
Center: Energy  
+Supplement to Enhancing the Programming Experience for Engineering Students through Hands-On Integrated Computer Experiences: Type II Proposal  
National Science Foundation  
$49,998.00  
**Co-PI(s):**
Center: Energy  
Planning Grant: I/UCRC for Advanced Vehicle Manufacturing  
National Science Foundation  
$11,500.00  
**Co-PI(s):** Kenneth Currie, Manufacturing Center; Wayne Johnson, Electrical and Computer Engineering; Mohan Rao, Mechanical Engineering; Stephen Scott, Computer Science  
Center: Manufacturing  
ICORP: Advancing Precision Manufacturing in Non-Factory Environments with Low-Cost Positioning Sensor  
National Science Foundation  
$50,000.00  
**Co-PI(s):**
Center: Manufacturing  
Ying Zhang  
Development of Marinized Pt-Modified MCrAIx Coatings with Improved Hot Corrosion and Oxidation Resistance Synthesized via a Low-Cost Electrodeposition Process  
Office of Naval Research  
$120,000.00  
**Co-PI(s):**
Center: Manufacturing  
An Alternative Low-Cost Process for Deposition of MCrAlY Bond Coats for Advanced Syngas/Hydrogen Turbine Applications  
U. S. Department of Energy  
$130,046.00  
**Co-PI(s):**
Center: Manufacturing
Research and Economic Development

Water Center

PI - Daniel Dodson
Acquisition of Goods and Services
U. S. Department of Agriculture
$18,000.00
Co-PI(s):
Center: Water

PI - Dennis George
Water Center Analytical and Computer Services
various
$51,362.00
Co-PI(s):
Center: Water
Center for the Management, Utilization and Protection of Water Resources State Appropriation, 2013-14
Tennessee Higher Education Commission
$1,205,600.00
Co-PI(s):
Center: Water
Center for the Management, Utilization and Protection of Water Resources State Appropriation, 2013-14

PI - Kendall Moles
Propagation and Culture of Juvenile Mussels for Restoration Efforts in the Ohio River
U. S. Geological Survey
$39,100.00
Co-PI(s):
Center: Water
Appendix B: FY 2013-2014 Intellectual Property Activity

Provisional Patent Applications
- Process for using protozoa for triglyceride production (Berk, Sharon G.; Black, Joseph L.; George, Dennis B.)
- Shrinkage reducing admixtures for Portland cement concrete (Biernacki, Joseph J.; Visco, Donald P.; Kayello, Hamed)

Utility Patent Applications
- Mechanically enhanced separation of reaction products in biodiesel production (Thompson, Jeffery)
- Method to optimize biodiesel production (Thomson, Jeffery)

Patents Licensed to Promethia Labs
- Polyacrylamide Hydrogel with Aligned Nanoparticles in Nanocomposites for Use in Electrophoresis and Therapeutics Delivery and the Method of Making and Using the Same (Thomson, Stretz, et al.)

Utility Patent
- Suspension for an Endless Track Climbing Machine (Canfield, Beard) 8567536 B1, Issued October 29, 2013

Royalty Income
- Robotic Technologies of Tennessee, TTU will receive $3,025 in royalty income.
### Appendix C: FY 2013-2014 Faculty Research Committee Awards

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Dept.</th>
<th>Amt.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conner, Nathan</td>
<td>School Based Agricultural Education</td>
<td>Agriculture</td>
<td>$3,000</td>
<td>Track I</td>
</tr>
<tr>
<td>Coonce, Janet</td>
<td>Research and Development of Interactive Games Designed for Introductory Chemistry Students</td>
<td>Chemistry</td>
<td>$3,000</td>
<td>Track I</td>
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<tr>
<td>Dainty, Helen</td>
<td>Academic Narratives: Empowering Students to Achieve in Standard-Based Curriculum</td>
<td>Curriculum and Instruction</td>
<td>$3,000</td>
<td>Track I</td>
</tr>
<tr>
<td>Deiter, Kristen</td>
<td>Shakespeare's Juliet and Elizabethan Catholics: Resisting Authority While Conforming Outwardly</td>
<td>English</td>
<td>$3,000</td>
<td>Track I</td>
</tr>
<tr>
<td>Dukewich, Tammy</td>
<td>Impact of Peer Victimization on the Form and Function of Children's Cognitions</td>
<td>Counseling and Psychology</td>
<td>$3,000</td>
<td>Track I</td>
</tr>
<tr>
<td>Navarro, Jordana</td>
<td>Soaring Above the Rest: Empowering Rural College Students to Organize Against Rape as Part of a Primary Prevention Initiative</td>
<td>Sociology and Political Science</td>
<td>$3,000</td>
<td>Track I</td>
</tr>
<tr>
<td>Northrup, Scott</td>
<td>Computational Study of Structure and Mode of Action of Organophosphate Pesticides</td>
<td>Chemistry</td>
<td>$3,000</td>
<td>Track I</td>
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<tr>
<td>Turpin, Rebecca/</td>
<td>User Friendly Decision Support System for Ergonomic Patients Handling</td>
<td>Nursing, Manufacturing and Engineering Technology</td>
<td>$3,000</td>
<td>Track I</td>
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<tr>
<td>Villalba, Manuel</td>
<td>Myth and History in the 1939 Spanish Exile Culture: Rhetorical Analysis of &quot;La realidad historica de Espana&quot; by Americo Castro</td>
<td>Foreign Languages</td>
<td>$2,250</td>
<td>Track I</td>
</tr>
</tbody>
</table>

Total: $26,250
### Appendix C: FY 2013-2014 Faculty Research Committee Awards

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Dept.</th>
<th>Amt.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anton, Steven</td>
<td>Exploring Novel Piezoelectret Polymers for Energy Harvesting</td>
<td>Mechanical Engineering</td>
<td>$10,000</td>
<td>Track III</td>
</tr>
<tr>
<td>Bhattacharya, Indranil</td>
<td>Design and Modeling of Very-High Efficiency Multijunction Solar Cells</td>
<td>Electrical and Computer Engineering</td>
<td>$10,000</td>
<td>Track III</td>
</tr>
<tr>
<td>Datta, Tania</td>
<td>Linking Diversity of Polyphosphate Accumulating Organisms to Improved Stability of the Enhanced Biological Phosphorus Removal Process</td>
<td>Civil and Environmental Engineering</td>
<td>$10,000</td>
<td>Track III</td>
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<tr>
<td>Duvall, Judy/Hurley, Shelia</td>
<td>HOPE to Retain At-Risk Nursing Students</td>
<td>Nursing/ Nursing</td>
<td>$10,000</td>
<td>Track III</td>
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<tr>
<td>Eberle, William</td>
<td>Hybrid and Graph-Based Data Mining of Medical Information Data</td>
<td>Computer Science</td>
<td>$9,438</td>
<td>Track III</td>
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<tr>
<td>Kalyanapu, Alfred/Ghafoor, Sheik</td>
<td>Rapid Flood Modeling and Consequence Assessment Using Multi-Core/GPU High Performance Computation</td>
<td>Civil and Environmental Engineering/ Computer Science</td>
<td>$10,000</td>
<td>Track III</td>
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<tr>
<td>Krosnick, Shawn</td>
<td>The Molecular Underpinnings of Nectaries in the Passion Flowers (Passiflora)</td>
<td>Biology</td>
<td>$10,000</td>
<td>Track III</td>
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</tbody>
</table>

**Total:** $69,438
Appendix D: Previous Years’ University Research Advisory Committee Information

FY 2009/10
Committee Members: Dr. Cathy Cunningham, Dr. William Eberle, Dr. Tor Guimaraes, Dr. Holly Anthony, Dr. Susan Gore, Dr. Kenneth Currie, Dr. Stephen Canfield, Dr. Donald Visco, Dr. Steven Frye, Dr. Stephen Parke, Dr. Barry Stein, Dr. Sue Bailey, Dr. Subramaniam Deivanayagam, Dr. Francis Otuonye
Meeting Dates: September 25, 2009; October 9, 2009; November 13, 2009; December 11, 2009; January 15, 2010; January 22, 2010; January 29, 2010; February 5, 2010; February 26, 2010; March 5, 2010; March 19, 2010; April 9, 2010; April 23, 2010; April 30, 2010
Committee Actions:
- University Research Advisory Council was established as Ad-hoc body to promote research and help facilitate and enhance the visibility of research at the University. The function of the Council is to advise the Provost and President on strategies to stimulate growth in research and externally funded scholarly activities within the University community and the development of a comprehensive structure and network activities to foster externally funded scholarly activities. In carrying out its functions, the Research Council will (a) identify strengths, weaknesses, opportunities and challenges to research growth and externally funded activities at TTU; (b) identify emerging research opportunities anticipated across academic disciplines; (c) make recommendations regarding intellectual and infrastructure needs required to capitalize on major research opportunities; (d) develop plans and make recommendations for accessing, supporting and sustaining existing and emerging research thrust areas; (e) review current practices on research administration and recommend strategies to foster research growth, and make recommendations regarding the commercialization of research and intellectual property issues.
- The scope and purpose of the Research Council was defined and prioritized, and subcommittees were formed to review separate sections of the document.
- Recommendations were made to the Library about increasing access to on-line periodicals and journals.
- Draft document was presented for adoption regarding research incentive pay.
- Recommendations were made that the Institutional Review Board for the Protection of Human Subjects, Institutional Animal Care and Use Committee, Faculty Research Committee, and Caplenor Award Committee report to the University Research Council.
- Final document of the Strategic Plan was discussed and refined.
- Workshops were held and on-line training modules were purchased from Kansas State for faculty training on Export Controls.

FY 2010/11
Committee Members: Dr. Holly Anthony, Dr. Sue Bailey, Dr. Cathy Cunningham, Dr. Stephen Canfield, Dr. Kenneth Currie, Dr. Subramaniam Deivanayagam, Dr. William Eberly, Dr. Susan Gore, Dr. Steven Frye, Dr. Tor Guimaraes, Dr. Hayden Mattingly, Dr. P.K. Rajan, Dr. Barry Stein, Dr. Donald Visco, Dr. Francis Otuonye (Executive Officer)
Meeting Dates: August 10, 2010; August 24, 2010; September 14, 2010; October 12, 2010; November 9, 2010; December 14, 2010; January 25, 2011; February 15, 2011; March 15, 2011; April 12, 2011; May 4, 2011
Committee Actions:
- Academic Council to which the University Research Advisory Council (URAC) reports was requested to elevate the status of URAC from an Ad-hoc Committee to a Standing Committee, and change the name to University Research Advisory Committee.
- Received a report from Marie Lou Harrell, an external evaluator, to examine the possibility of establishing a grants processing center to consolidate and streamline the different pre- and post-award administrative activities on campus.
- Adopted a policy regarding cost-share on grants and contracts
- Discussed the idea of a research magazine to show case TTU research
- Finalized the policy and procedures of URAC
- Continued discussion regarding goals and objectives in the strategic plan
- Discussions were initiated about forming subcommittees to develop actionable items for each of the goals in the strategic plan
- Discussed the implementation of an Undergraduate Research and Creative Activities (URECA) program
Appendix D: Previous Years’ University Research Advisory Committee Information

FY 2011/12
Committee Members: Dr. Holly Anthony, Dr. Sue Bailey, Shabir Bhegani (student rep./undergraduate), Dr. Stephen Canfield, Dr. Cathy Cunningham, Dr. Kenneth Currie, Dr. Subramaniam Deivanayagam, Dr. William Eberle, Dr. Sherrie Foster, Dr. Steven Frye, Dr. Tor Guimaraes, Dr. Hayden Mattingly, Dr. P.K. Rajan, Dr. Barry Stein, Dr. Holly Stretz, Jeffery Thompson (student rep./graduate Ph.D.), Dr. Francis Otouanye (Executive Officer)
Meeting Dates: September 13, 2011; October 11, 2011; November 8, 2011; January 17, 2012; February 14, 2012; March 13, 2012; April 10, 2012
Committee Actions:
• Distributed and discussed funding activations for FY10/11
• Discussed implementation of incentive pay for faculty as one means to stimulate research activity
• Discussed funding goals for FY2011/12 and strategies to enhance external funding activations which included (a) conduct exit interviews of research active faculty to determine their reasons for departure; (b) hire new faculty at the associate professor level who could hit the ground running in terms of funding acquisition; (c) request the deans to provide funding targets for their respective units for the next five years, or hold targeted funding for FY 2010/11 constant for the next five fiscal years until the University could recover from the impacts of the depressed economy and loss of productive faculty; (d) recommend the purchase of Collaborative Institutional Training Initiative Software for use in faculty training in export controls in addition to other training on research compliance.
• Members were assigned to various subcommittees to develop actionable items for each goal in the strategic plan, so that the committee could prioritize the goals to work in accomplishing within any fiscal year.
• Guidelines were developed for the distribution of incentive pay for faculty. Revisions and streamlining of pre- and post-award forms were implemented.
• Purchased InfoEd’s Sponsored Program Information Network (SPIN) Plus Suite software to provide automated electronic funding alerts to faculty in their respective areas of research.
• Subcommittees presented updates on their respective charges. The strategic goals were incorporated into the University’s strategic plan.

FY2012/13
Committee Members: Dr. Holly Anthony, Dr. Melinda Anderson, James S. Leverette (student rep./graduate MS), Dr. Stephen Canfield, Dr. Kenneth Currie, Dr. Darrell Hoy, Dr. William Eberle, Dr. Sherrie Foster, Dr. Steven Frye, Dr. Tor Guimaraes, Dr. Hayden Mattingly, Dr. P.K. Rajan, Dr. Barry Stein, Dr. Holly Stretz, Jared Woodward (student rep./undergraduate), Dr. Francis Otouanye (Executive Officer)
Committee Actions:
• URAC selected the following items from the strategic plan for further discussion and implementation: implement new faculty mentorship program; provide better quality space for research; identify high quality juniors, seniors and graduate students and encourage them to apply for graduate research fellowships offered by federal agencies, industry and foundations; feature TTU researchers on Office of Research website to include video-based research activities.
• URAC reviewed and discussed funding trends from FY 2008/09 to FY 2011/12 and reasons for the decline in funding.
• President Oldham was invited to the URAC meeting to learn of the strategic plan and provide input regarding future directions for research at TTU.
• The different subcommittees provided updates regarding actionable items in the strategic goals.

FY2013/14
Committee Members: Dr. Holly Anthony, Dr. Melinda Anderson, James S. Leverette (student rep./graduate MS), Dr. Stephen Canfield, Dr. Kenneth Currie, Dr. Darrell Hoy, Dr. William Eberle, Dr. Sherrie Foster, Dr. Steven Frye, Dr. Tor Guimaraes, Dr. Hayden Mattingly, Dr. P.K. Rajan, Dr. Barry Stein, Dr. Holly Stretz, Jared Woodward (student rep./undergraduate), Dr. Francis Otouanye (Executive Officer)
Committee Actions:
• The Committee continued the work on implementing various action items laid out in the Strategic Plan for Research adopted on April 10, 2012.
• Dr. Bharat Soni, new Vice President for Research and Economic Development, shared his perspective on research at TTU.
• The Committee worked on re-defining the role of URAC in relationship to the Flight Plan and the renewed emphasis on research and scholarly activity.