The Office of Research, Engagement, and Sponsored Programs is pleased to present the twelfth annual report of research activities at IPFW. Total awards during the 2013-2014 fiscal year exceeded $7.6 million, with applications for new funding reaching nearly $16 million.

As a regional comprehensive university, IPFW is committed to providing both an outstanding educational experience for our students as well as supporting the creation of new knowledge through the scholarly achievements of our faculty. We invite you to take a moment to review the wide range of projects that have received extramural funding.

IPFW is deeply appreciative of the efforts of our faculty and staff who have so greatly contributed to the growth and success of our university and region.

J Albayyari
Associate Vice Chancellor
Research, Engagement, and Sponsored Programs
### Academic/Administrative Unit

#### 2013-2014 Percent of Total

<table>
<thead>
<tr>
<th>Unit</th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vice Chancellor for Financial Affairs</td>
<td>$2,600,000</td>
<td>33.91%</td>
</tr>
<tr>
<td>Vice Chancellor for Student Affairs</td>
<td>$969,852</td>
<td>12.65%</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>$923,838</td>
<td>12.05%</td>
</tr>
<tr>
<td>Medical Education</td>
<td>$900,442</td>
<td>11.74%</td>
</tr>
<tr>
<td>Engineering, Technology, and Computer Science</td>
<td>$809,517</td>
<td>10.56%</td>
</tr>
<tr>
<td>Vice Chancellor for Academic Affairs</td>
<td>$737,128</td>
<td>9.61%</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>$437,699</td>
<td>5.71%</td>
</tr>
<tr>
<td>Education and Public Policy</td>
<td>$218,149</td>
<td>2.85%</td>
</tr>
<tr>
<td>Doermer School of Business</td>
<td>$38,833</td>
<td>0.51%</td>
</tr>
<tr>
<td>Visual and Performing Arts</td>
<td>$32,600</td>
<td>0.41%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$7,668,058</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

#### 2013-2014 Percent of Total

<table>
<thead>
<tr>
<th>Unit</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCFA</td>
<td>33.91%</td>
</tr>
<tr>
<td>VCSA</td>
<td>12.05%</td>
</tr>
<tr>
<td>MED</td>
<td>11.74%</td>
</tr>
<tr>
<td>ETCS</td>
<td>10.56%</td>
</tr>
<tr>
<td>COAS</td>
<td>9.61%</td>
</tr>
<tr>
<td>HHS</td>
<td>5.71%</td>
</tr>
<tr>
<td>DSB</td>
<td>0.51%</td>
</tr>
<tr>
<td>EPP</td>
<td>2.85%</td>
</tr>
<tr>
<td>VPA</td>
<td>0.41%</td>
</tr>
<tr>
<td>VCAA</td>
<td>0.41%</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
GRANT SOURCES
2013-2014 Percent of Total

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>State and Local Government</td>
<td>$3,319,144</td>
<td>43.29%</td>
</tr>
<tr>
<td>Federal</td>
<td>$1,362,455</td>
<td>17.77%</td>
</tr>
<tr>
<td>IPFW</td>
<td>$1,190,491</td>
<td>15.53%</td>
</tr>
<tr>
<td>Indiana University</td>
<td>$915,142</td>
<td>11.93%</td>
</tr>
<tr>
<td>Industrials and Foundations</td>
<td>$756,277</td>
<td>9.86%</td>
</tr>
<tr>
<td>Purdue Research Foundation</td>
<td>$124,549</td>
<td>1.62%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$7,668,058</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

GRANT SOURCES

Federal 17.77%
State and Local Government 43.29%
Indiana University 11.93%
IPFW 15.53%
Industrials and Foundations 9.86%
Purdue Research Foundation 1.62%

GRANT TYPE FUNDED
2013-2014 Success Rate

<table>
<thead>
<tr>
<th>Type</th>
<th>Number Submitted</th>
<th>Amount Requested</th>
<th>Number Funded</th>
<th>Amount Funded</th>
<th>Percent of Proposals Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>37</td>
<td>$8,606,724</td>
<td>16</td>
<td>$1,362,455</td>
<td>16</td>
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<tr>
<td>State and Local Government</td>
<td>12</td>
<td>$3,459,559</td>
<td>10</td>
<td>$3,319,144</td>
<td>96</td>
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<tr>
<td>Industrials and Foundations</td>
<td>73</td>
<td>$1,551,274</td>
<td>57</td>
<td>$756,277</td>
<td>49</td>
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<tr>
<td>IPFW</td>
<td>84</td>
<td>$1,313,844</td>
<td>63</td>
<td>$1,190,491</td>
<td>90</td>
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<tr>
<td>IU/PRF</td>
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<td>$1,045,391</td>
<td>39</td>
<td>$1,039,691</td>
<td>99</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td>252</td>
<td>$15,976,792</td>
<td>185</td>
<td>$7,668,058</td>
<td>48</td>
</tr>
</tbody>
</table>
FUNDED PROJECTS

Federal

**College of Arts and Sciences**

**Dehr, Karol**  
English and Linguistics  
2014-2016 NWP Seed Teacher Leadership Development  
National Writing Project  
$10,000

**Ericson, Karen**  
Chemistry  
Pyridoxic Acid Analysis  
NASA Institute for Advanced Concepts/Wyle Laboratories  
$27,340

**Gillespie, Robert**  
Biology  
Effects of Nutrient-Pesticide Mixtures on Biota in Agricultural Headwater Streams in the Midwestern United States, Year One  
U.S. Department of Agriculture/National Soil Erosion Laboratory  
$37,584

**Kingsbury, Bruce**  
Biology  
Ecology and Management of the Eastern Massasauga Rattlesnake  
Michigan Department of Military Affairs  
$39,600

**Nachappa, Punya**  
Biology  
Understanding Vector Efficiencies and Life History of Thrips Vectors of Soybean Vein Necrosis Associated Virus  
U.S. Department of Agriculture/National Institute of Food and Agriculture  
$149,995

**Yoder, Ryan**  
Psychology  
Modeling the Cognitive Effects of Microgravity: Navigation and Brain Function in Mice Lacking Functional Otolith  
NASA/Indiana Space Grant Consortium  
$15,000
FUNDED PROJECTS

College of Engineering, Technology, and Computer Science

Cooklev, Todor
Wireless Technology Center
A Flexible and Extensible Solution to Incorporating New RF Devices and Capabilities into EW/ISR Networks
DARPA/Adaptive Micro-Ware, Inc.
$47,224

Eroglu, Abdullah
Engineering
Development of Electromagnetics Visualization Laboratory Course for High School Students
NASA/Indiana Space Grant Consortium
$29,690

Thompson, Elizabeth
Engineering
Parallel CUDA Implementation of Conflict Detection for Application to Airspace Deconfliction
National Science Foundation/Ball State University/SSERC
$12,343

College of Health and Human Services

Finke, Linda
HHS Administration
Lafayette Street Family Health Clinic Title X
U.S. Department of Health and Human Services/Indiana Family Health Council
$236,850

Temporary Assistance for Needy Families - Lafayette Street Family Health Clinic
U.S. Department of Health and Human Services/Indiana Family Health Council
$31,262

Vice Chancellor for Academic Affairs

Barrick, Debra
Academic Internships, Cooperative Education, and Service Learning
StemCorps
AmeriCorps/Office of Faith-Based and Community Initiatives
$6,250
FUNDED PROJECTS

*Rich, Jane*
Division of Continuing Studies
*Northeast Indiana Small Business Development Center 2014 (Federal Funding)*
Indiana Small Business Development Center
$43,436

**Vice Chancellor for Student Affairs**

*Christmon, Kenneth*
Diversity and Multicultural Affairs
*Upward Bound I*
U.S. Department of Education
$236,925

*Upward Bound II*
U.S. Department of Education
$236,925

*Kever, Shubitha*
Diversity and Multicultural Affairs
*Student Support Services at IPFW*
U.S. Department of Education
$202,031

**State and Local Government**

**College of Education and Public Policy**

*Cutter, Ellen*
Community Research Institute
*Professional Consultation in Planning, Policy, and Research*
City of Fort Wayne
$25,000

*Allen County and Metro Area Economic Information, Economic Development and Public Policy Support Services*
Allen County Board of Commissioners
$25,000

**College of Engineering, Technology, and Computer Science**

*Cooklev, Todor and Setzer, Claude*
Wireless Technology Center
*Innovation in Microwave Power Amplifier Design*
Allen County-Fort Wayne Capital Improvement Board
$276,000
FUNDED PROJECTS

Innovation in Microwave Power Amplifier Design Equipment Request
City of Fort Wayne
$100,000

Hamilton, Timothy
Manufacturing & Construction Engineering Technology and Interior Design
Feasibility of Using Renewable Energy Credits for ANG "Net Zero" Goals (13862)
Indiana Air National Guard
$7,200

Vice Chancellor for Academic Affairs

Rich, Jane
Division of Continuing Studies
Northeast Indiana Small Business Development Center 2014 (State Funding)
Indiana Small Business Development Center
$5,388

Vice Chancellor for Financial Affairs

Davis, Stanley W.
Financial Affairs
Pedestrian Bridge between IPFW and IVY Tech
Indiana Department of Transportation
$2,600,000

Vice Chancellor for Student Affairs

Gray, Nicholas
Diversity and Multicultural Affairs
Summer Food Service Program
Indiana Department of Education
$16,473

Christmon, Kenneth
Diversity and Multicultural Affairs
Career and Technical Education Student Services 2013-2014
Indiana Department of Workforce Development
$262,583

Indiana ScholarCorps AmeriCorps Program 2013-2014
Indiana Commission for Higher Education
$1,500
FUNDED PROJECTS

Industrials and Foundations

**College of Arts and Sciences**

**Argast, Anne**  
Geosciences  
*Use of Equipment in the Argast Family Imaging and Analysis Lab*  
Fort Wayne Metals  
$35,000

PHD, Inc.  
$5,000

Valbruna Slater Stainless, Inc.  
$5,000

*SEM Analysis of Materials*  
L. Gilbertson Consulting, LLC  
$2,000

Rea Magnet Wire  
$5,000

*SEM/EDS Analysis of Materials*  
Regal-Beloit Corp.  
$2,000

**Blumenthal, Elliott and Soule, Tanya**  
Biology  
*Probiotic Effect on Oral Microorganisms*  
Oragenics, Inc.  
$9,980

**Carr, Steven**  
Communication  
*U.S. Holocaust Memorial Museum Exhibition "Nazi Persecution of Homosexuals"*  
Congregation Achduth Vesholom; Harry W. Salon Foundation  
$5,000

**Deng, Yihao**  
Mathematical Sciences  
*Statistical Model for Forecasting Magnet Wire Market in North America*  
Superior Essex  
$9,508
FUNDED PROJECTS

**Farlow, James**  
Geosciences  
*Fossil Large Vertebrates from the Pipe Creek Sinkhole (Late Neogene, Grant County, Indiana)*  
Indiana Academy of Science  
$3,000

National Geographic Society  
$13,580

**Jordan, Mark**  
Biology  
*Conservation Genetics of the Blanding's Turtle, Emys blandingii, Using Whole-genome Analyses*  
Fort Wayne Children's Zoo  
$1,700

**Kingsbury, Bruce**  
Biology  
*Amphibian Occupancy in a System of Restored Wetlands*  
Fort Wayne Children's Zoo  
$1,700

*Life in the City: Urban River Ecology of the Common Snapping Turtle in Fort Wayne, Indiana*  
Fort Wayne Children's Zoo  
$1,700

*Response of Eastern Massasauga to Habitat Alterations by Fire and Forest Management at Camp Grayling, Michigan*  
Fort Wayne Children's Zoo  
$1,700

*Online Water Quality Database*  
St. Joseph River Watershed Initiative  
$5,500

**Marshall, Jordan**  
Biology  
*Ash Leaf Nutritional and Fiber Content Relative to Emerald Ash Borer Feeding Behavior*  
Indiana Academy of Science  
$1,018

**Nachappa, Punya**  
Biology  
*Dissecting the Ecological and Molecular Mechanisms Underlying the Interaction Between Soybean Plant, Soybean Aphid, and Soybean Mosaic Virus*  
Indiana Academy of Science  
$2,970
FUNDED PROJECTS

Surveying Indiana Soybean for Soybean Vein Necrosis Virus and Evaluating Biological Control and Plant Defense Elicitors
Indiana Soybean Alliance
$29,686

Nalam, Vamsi
Biology
Engineering a Host Defense Regulatory Gene, PHYTOALEXIS DEFICIENT 4 (PADA) for Enhancing Resistance to Soybean Aphid
Indiana Soybean Alliance
$27,923

Paladino, Frank
Biology
Costa Rican Sea Turtles 2013-2014
Earthwatch
$130,000

College of Education and Public Policy

Cutter, Ellen
Community Research Institute
Professional Services Related to the Noble County Economic Development Corporation and Limited Research Requests
Noble County Economic Development Corporation
$6,000

Professional Services Related to the Greater Fort Wayne Inc. Website and Limited Research Requests
Greater Fort Wayne, Inc.
$3,000

Professional Services Related to Whitley County EDC Website and Research Requests
Whitley County Economic Development Corporation
$3,000

Professional Services Related to Strategic Planning
Greater Fort Wayne, Inc.
$5,000

Professional Services Related to LaGrange County EDC Website and Research Requests
LaGrange County Economic Development Corp
$3,000

New Allen Alliance Organization Action Plan
Fort Wayne-Allen County Economic Development Alliance
$15,450
FUNDED PROJECTS

Benefit Survey
Whitley County Economic Development Corporation
$3,000

Assistance with Review of Effects of Public Law 176-2009
Allen County-Fort Wayne Capital Improvement Board of Managers
$1,000

2014 Maintenance, Update, Presentation of Regional Economic Performance Dashboard
Northeast Indiana Fund
$14,000

General Economic Research
Northeast Indiana Fund
$10,000

2014 Business Dynamics System, Economic News Monitoring, and Website Data
Northeast Indiana Fund
$36,000

Provision of Region-Specific Market Information
Northeast Indiana Works
$5,000

College of Engineering, Technology, and Computer Science

Abu-Mulaweh, Hosni
Engineering
Design and Development Educational Solar Water Heating System with Phase Change Materials
AHSRAE, Inc.
$5,000

Alavizadeh, Ali
Manufacturing & Construction Engineering Technology and Interior Design
Bottleneck Identification, System Capacity Determination and Flow Rate
Kernel Coladas Gourmet Popcorn
$7,200

Chen, Dong and Mueller, Donald
Engineering
Model Development for DWN Product Used in Dishwasher Cleaning (13861)
Summit Brands
$7,200
FUNDED PROJECTS

_Cochran, David_
Engineering/Systems Engineering Center
_Implementation and Benefits of Lean Accounting Systems_
National Office Furniture
_$7,200_

_Improvement of Process Variation for BioPoly Manufacturing_
BioPoly, LLC
_$7,200_

_Lean Enterprise Engineering Proposal_
OJI Intertech, Inc.
_$30,000_

_Bendix Re-manufacturing Simulation Model_
Bendix Commercial Vehicle Systems LLC
_$60,000_

_Evaluation to Determine Design Requirements and Implementation Path to Lean (14027)_
Mullinix
_$7,200_

_Dupen, Barry_
Manufacturing & Construction Engineering Technology and Interior Design
_Analysis of Issues with Punched and Formed Materials_
OMCO Roll Forming
_$7,200_

_Analysis and Correction of Nitriding Issues_
Bowmar, LLC
_$7,200_

_Testing Options for Adhesive Bond Strength_
Courier Kendallville, Inc.
_$7,200_

_Kang, Bongsu and Bi, Zhuming_
Engineering
_Modeling and Analysis of Contact Stresses and Fatigue for Teflon Impregnated Hardcoated Aluminum Parts_
PHD, Inc.
_$60,000_
FUNDED PROJECTS

Mueller, Donald
Engineering
*Literature Survey for Thermal Barrier Modeling of Slab Construction Homes*
Indiana Marine Products
$2,160

Narang, Ramesh
Manufacturing & Construction Engineering Technology and Interior Design
*Process Improvement for Powder Booth Activities*
Par-Kan Co.
$7,200

Sedlmeyer, Robert
Computer Science
*Definition of Functional Requirements for Interactive Video Sharing Website*
Lang Marketing Resources
$7,200

Thompson, Elizabeth
Engineering
*Mathematical Validation of Equation to Generate Complex Waveforms and Modulating Signals*
Adaptive Micro-Ware, Inc.
$7,200

College of Health and Human Services

Obergfell, Ann M.
HHS Administration
*IPFW K-12 Programming*
Health Visions Midwest, Inc.
$8,842

Pratt, Brooke O.
Dental Education
*Foundation for Dental Laboratory Technology Keystone Grant 2013*
Foundation for Dental Laboratory Technology
$5,000

Toscos, Tammy
Nursing
*Improving Healthcare Systems for Access to Care by Underserved Patients*
Regenstrief Institute, Inc.
$86,745
FUNDED PROJECTS

Vice Chancellor for Academic Affairs

Barrick, Debra
Academic Internships, Cooperative Education, and Service Learning
Alternate Spring Break: Urban Plunge
Indiana Campus Compact
$2,500

Vice Chancellor for Student Affairs

Christmon, Kenneth
Diversity and Multicultural Affairs
The BIG Event 2014
Indiana Campus Compact
$1,415

Creek, Julie
Center for Women and Returning Adults
Being First: Supporting Success for Non-traditional First Generation College Students
IU Women’s Philanthropy Council
$7,000

Riley, Christopher
Diversity and Multicultural Affairs
IPFW DENR Healthcare Experience
Health Visions Midwest, Inc.
$5,000
FUNDED PROJECTS

University

Summer grants for research enable faculty members to dedicate two full months to a research project during the summer. IPFW and the Purdue Research Foundation provide the funding for this competitive peer-reviewed process. The grants are for $8,000 each.

2014 IPFW Summer Faculty Grant Recipients

College of Arts and Sciences

Buttes, Stephen
International Language and Culture Studies
The Art of Poverty: Nation, Aesthetics and the Making of Mexican Modernity

White, Kate
English and Linguistics
Recovering the Immigrant Experience: The Politics of Whiteness in the General Federation of Women’s Clubs

2014 Purdue Research Foundation Summer Faculty Grant Recipients

College of Arts and Sciences

Brown Vega, Margaret
Anthropology
The Chronology of Warfare in the Huaura Valley, Central Coast of Peru

Daniel, Jaiyanth
Biology
Investigating the Biochemical Pathways of Lipid Metabolism in the Human Pathogen Causing Latent Tuberculosis Disease

Kearl, Michelle
Communication
The Thin Edge of the Wedge: Abortion, Civil Rights Rhetoric, and Analogy

Nasr, Assem
Communication
Oral Culture in the Age of News Networks and Social Media: A Lebanese Perspective

Tamul, Daniel
Communication
Mitigating Social Stigma

College of Engineering, Technology, and Computer Science

Hedayat, Ahmadreza
Engineering
Geophysical Monitoring of Fractures in Indiana Limestone
EXTERNAL AWARDS

Sources

Each of the following organizations provided grant or contract support to IPFW this year. Each organization is listed only once, although some issued multiple awards.

Federal Agencies

AmeriCorps/Office of Faith-Based and Community Initiatives
Defense Advanced Research Projects Agency/Adaptive Micro-Ware, Inc.
Michigan Department of Military Affairs
NASA/Indiana Space Grant Consortium
NASA Institute for Advanced Concepts/Wyle Laboratories
National Science Foundation/Ball State University/SSERC
National Writing Project
U.S. Department of Agriculture/National Institute of Food and Agriculture
U.S. Department of Agriculture/National Soil Erosion Laboratory
U.S. Department of Education
U.S. Department of Health and Human Services/Indiana Family Health Council

State and Local Government Agencies

Allen County Board of Commissioners
Allen County-Fort Wayne Capital Improvement Board
City of Fort Wayne
Indiana Air National Guard
Indiana Commission for Higher Education
Indiana Department of Education
Indiana Department of Transportation
Indiana Department of Workforce Development
Indiana Small Business Development Center
EXTERNAL AWARDS

Industrials and Foundations

Adaptive Micro-Ware, Inc.

AHSRAE, Inc.

Allen County-Fort Wayne Capital Improvement Board of Managers

Bendix Commercial Vehicle Systems LLC

BioPoly, LLC

Bowmar, LLC

Congregation Achduth Vesholom; Harry W. Salon Foundation

Courier Kendallville, Inc.

Earthwatch

Fort Wayne Children's Zoo

Fort Wayne Metals

Fort Wayne-Allen County Economic Development Alliance

Foundation for Dental Laboratory Technology

Greater Fort Wayne, Inc.

Health Visions Midwest, Inc.

Indiana Academy of Science

Indiana Campus Compact

Indiana Marine Products

Indiana Soybean Alliance

IU Women's Philanthropy Council

Kernel Coladas Gourmet Popcorn

L. Gilbertson Consulting, LLC

LaGrange County Economic Development Corp
EXTERNAL AWARDS

Lang Marketing Resources
Mullinix
National Geographic Society
National Office Furniture
Noble County Economic Development Corporation
Northeast Indiana Fund
Northeast Indiana Works
OJI Intertech, Inc.
OMCO Roll Forming
Oragenics, Inc.
Par-Kan Co.
PHD, Inc.
Rea Magnet Wire
Regal-Beloit Corp.
Regenstrief Institute, Inc.
St. Joseph River Watershed Initiative
Summit Brands
Superior Essex
Valbruna Slater Stainless, Inc.
Whitley County Economic Development Corporation
EXTERnal awaRDs

universities support

IPFW Office of Academic Affairs
IPFW Center for Learning and Teaching
IPFW Office of Graduate Studies
IPFW Office of Research, Engagement, and Sponsored Programs
Indiana University Office of International Affairs
Indiana University Office of the Vice President for Research
Indiana University School of Medicine
Purdue Research Foundation