BIOscope

SPRING **2014**

MESSAGE FROM THE DEPARTMENT CHAIR

What a fantastic and quick year we have had! Biology students have taken top awards in the Sigma Xi as well as the IPFW student research competitions! Our department had the first Goldwater Scholar at IPFW from the work Micah Rapp completed in the lab of Dr. Mourad. In addition, our two newer faculty, Drs. Nachappa and Nalam received sizable external grants that are already supporting graduate and undergraduate students in their research project. Dr. Mustafa has been promoted to full professor and received the Friends Outstanding Teacher Award. Mrs. Feightner received the Breuning Outstanding Advisor Award, Dr. Gillespie received the Excellence in Regional Engagement Award, Mark Jordan received the Tri Beta Faculty of the Year Award, and Dr. Kingsbury has also received a significant external grant that supports students working in his lab and the Environmental Research Center. I hope you all have a wonderful summer and get involved with the faculty and their research programs. You are the one who will make your dreams of a career in the life sciences come true by engaging and getting involved both inside and outside the classroom.

See all you seniors at graduation!

Frank V. Paladino, Ph.D. FAAAS
Jack W. Schrey Distinguished Professor
Chair of Biology

CONGRATULATIONS TO SPRING 2014 GRADUATES

The following students received the Bachelor of Science degree:

Kristine Arvola
Kayla Boyes
Srikanth Dasari
Trevor Dawson
Linae Deck
Wendy Forrest
Rane Gascoyne
James Greer
Aldane Hoilett
Denise Holloway
Julie Jeszenszky
Daniel Jones
Giovanna Martinez-Lopez
Bradley McKee
Heidi Nissley
Katelyn Norton
Lisa Pham
Rebeca Quirindongo
Timothy Saltys
Kaylyn Sands
Peter Saya
Maja Sljivar
Vi Tran
Laura Trent
Adam Warrix
Patricia Weiss
Megan Wyatt
Michael Zijlstra

These students received the Master of Science degree:

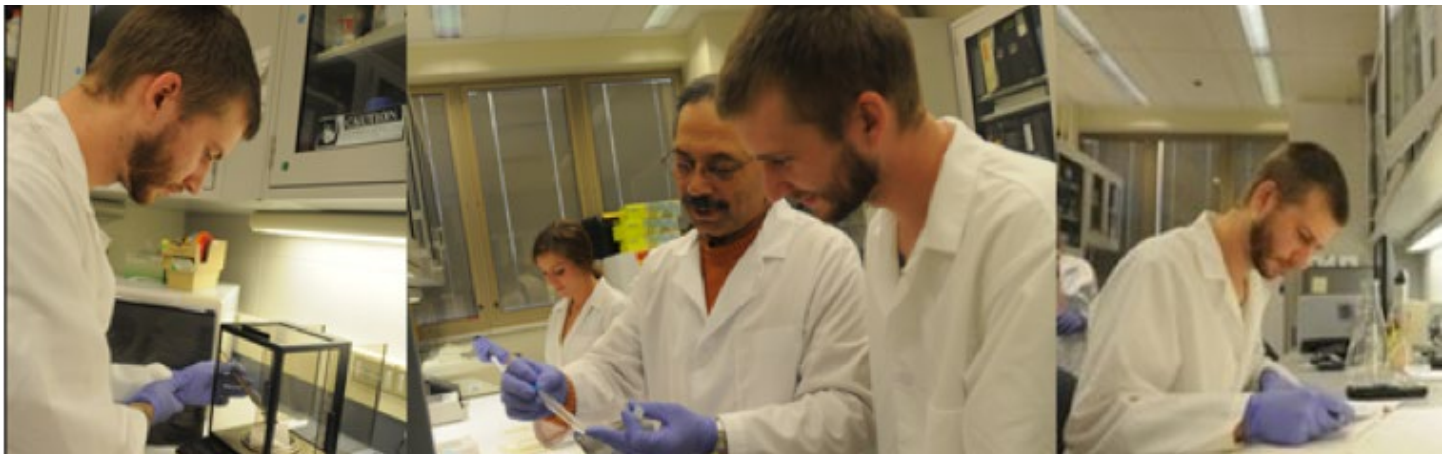
Abel Castenada
Kendra Kracium
Rachel Fuelling
Stella Snyder

DEPARTMENT OF BIOLOGY
INDIANA UNIVERSITY–PURDUE UNIVERSITY FORT WAYNE
COLLEGE OF ARTS AND SCIENCES
IPFW

STUDENT NEWS

IPFW STUDENT NAMED GOLDWATER SCHOLAR

Micah Rapp, is the first ever IPFW recipient of the prestigious highly competitive Goldwater Scholarship. The Goldwater Foundation is a federally endowed agency established by Public Law 99-661 on November 14, 1986. The Scholarship Program honoring Senator Barry Goldwater was designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences, and engineering. The Goldwater Scholarship is the premier undergraduate award (up to $7,500) of its type in these fields. Applicants compete nation-wide and a national committee makes selection of winners based on documenting excellence in undergraduate research. Micah did his research, for 1.5 years, under the mentorship of Professor Mourad on using reverse genetics to characterize membrane transporters central to nucleobase biochemistry in maize and a grass relative. Micah is a co-author on a paper from Professor Mourad's lab that is currently under review for publication in a high impact peer-reviewed journal. It is prudent to note that juniors and sophomores from prestigious institutions such as Princeton, Harvard, and Duke compete for these scholarships!



Micah Rapp working in the lab with his research advisor Professor George Mourad
(Photo: Mourad's Lab)

2014-2015 SCHOLARSHIP/AWARD WINNERS

Outstanding Senior Biology Award
Srikanth Dasari
Vi T. Tran

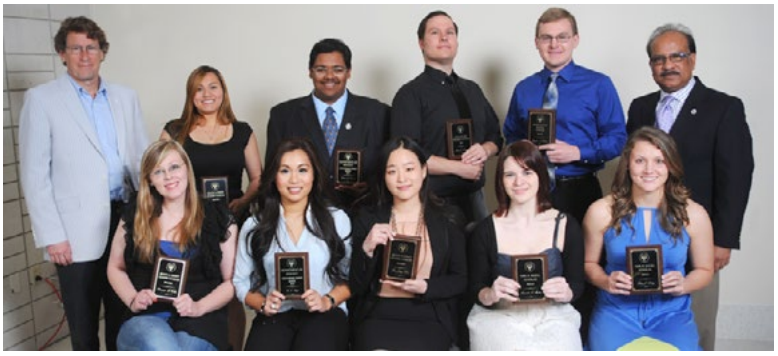
Leo and Jack Jehl Memorial Scholarship
Jesse J. Rinard

Emil Richard Seidel Scholarship
Dusty L. Gremaux
Amanda N. Martin
Kara J. Scobey

Honors Degree in Biology
Maja B. Sljivar

Ernest and Henebry Scholarship
Min Jung Kim
Shelby G. Reyes
Shannon M. Calder
Geral'n N. McGee

Department of Biology Scholarship
Stephen A. Zahm



2014-2015 biology Scholarship/award winners with Associate Professor Ahmed Mustafa and Professor Bruce Kingsbury (Photo: Elmer Denman).

SIGMA XI RESEARCH SYMPOSIUM 2014 WINNERS

First place:
Christopher Culkin (Advisor: Assistant Professor Punya Nachappa)

IPFW RESEARCH AND CREATIVE ENDEAVOR SYMPOSIUM 2014 WINNERS

First place: Three-way tie
Chelsea Clyde-Brockway (Advisor: Professor Frank Paladino)
Christopher Culkin (Advisor: Assistant Professor Punya Nachappa)
Jennifer Swiggs (Advisor: Professor Frank Paladino)

Second place:
Sasha Tetzlaff (Advisor: Professor Bruce Kingsbury)

Third place:
Jacob Hill (Advisor: Professor Frank Paladino)

2014 HONORS SHOWCASE

Completion and public presentation of the Honors project provides the capstone education experience for Honors students. The following students will be graduating next month with an honors certificate and medal:

Kayla Boyes – Biology (Advisor: Assistant Professor Jordan Marshall)

Srikanth Dasari – Biology/Physics (Advisor: Professor Mark Masters)

Heidi Nissley – Biology (Advisor: Associate Professor Ahmed Mustafa)

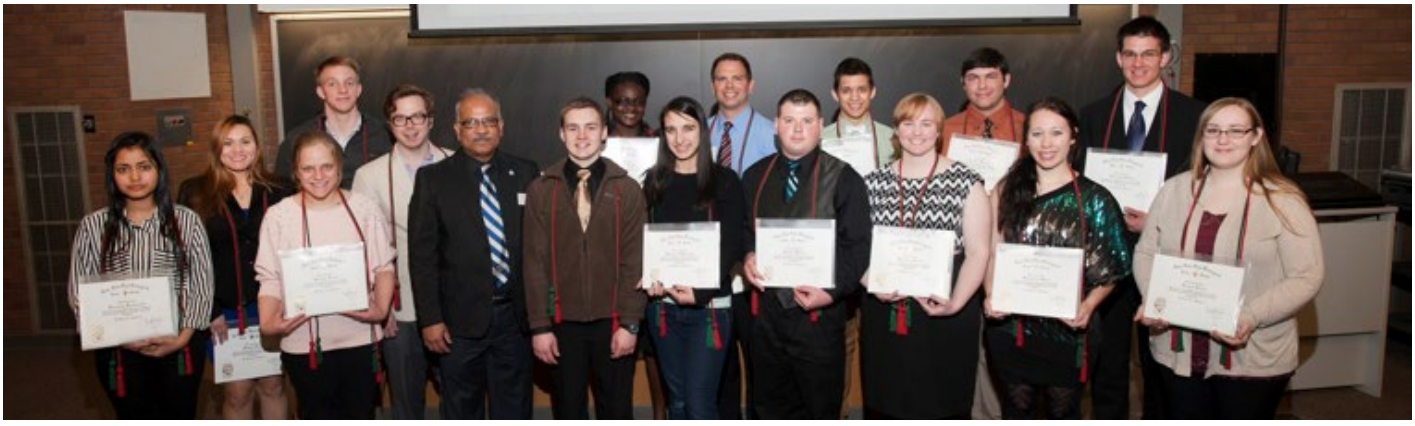
Maja Sljivar – Biology (Advisor: Professor William DeMott)

Laura Trent – Biology (Advisor: Professor George Mourad)

Rachel Habegger, a junior of Biology/History will also receive a medal during Commencement 2015 for her research presentation at the 2014 showcase. (Advisor: Assistant Professor Jordan Marshall)

TRI-BETA BIOLOGICAL HONOR SOCIETY INDUCTEES 2014

This year 17 outstanding biology students from IPFW have been honored with the life time membership of Beta Beta Beta Biological Honor Society. These students received their membership at the induction ceremony held March 26, 2014. The inductees are: Zane Anderson, Kimberly Baker, Kalyssa Bontrager, Sean Dunaj, Shaun Herron, Deborah Idjoko, Jamison Law, Parker Martin, Katelyn Norton, Shelby Reyes, Timothy Saltys, Erina Sarker, Dominic Snowball, Kendra Stuck, Farzana Tarannum, Jacob Torkeo, and Laura Trent.



OTHER STUDENT NEWS

Srikanth Dasari has been accepted to the Indiana University School of Medicine.

Jenna Davidson has been accepted to Notre Dame University Ph.D. program in Entomology.

Jeff Kaufman, a 2012 IPFW graduate, has been accepted as an M.S. student with an assistantship in the University of Tennessee Animal Science Graduate Program.

Justine LeBlanc has been accepted to the University of Toronto into their Master of Program in Biotechnology.

Maja Sljivar has been accepted to the Indiana University Ph.D. program in ecology.

Sasha Teztlaff has received a grant from the Fort Wayne Children's Zoo Animal Research and Conservation Committee to present research at the Biology of the Pit Vipers II Symposium in Tulsa, Oklahoma.

Vi Tran has been accepted to the Indiana University School of Medicine for the 2018 class.

Congratulations **Nathan Robinson** for his Archie Carr Student Award for Runner-Up for Best Oral Presentation in Biology, **Aliki Panagopoulou** for her Archie Carr Student Award for Runner-Up for Best Oral Presentation in Conservation, and to Professor Frank V. Paladino, Leatherback Trust president, for his award of lifetime achievement!! All these given at the ISTS meeting in New Orleans, USA (Photo: Frank Paladino).

COURSE ANNOUNCEMENTS

FALL 2014 – BIOLOGY ELECTIVES

A Electives

BIOL 50100 – Field Botany
BIOL 59800 – Biology of Fish
ENTM 20600 – General Applied Entomology
ENTM 20700 – General Applied Entomology lab

B Electives

BIOL 21500 - Basic Human Anatomy (w/lab)
BIOL 38100 - Cell Biology
BIOL 43700 - General Microbiology (w/lab)
BIOL 50600 – Human Molecular Genetic
BIOL 51600 – Molecular Biol Cancer
BIOL 53300 – Medical Microbiology
BIOL 59500-01 – Crse: Proteins Structure Function
BIOL 59500-02 – Insect Vector-Borne Diseases

ADDITIONAL COURSES OFFERED AND PUBLISHED IN THE SCHEDULE OF CLASSES

BIOL 59500- titled "Proteins: Structures and Functions," a new Biology B elective course will be offered in Fall 2014 (TR 9:00 – 10:15 am) by Assistant Professor Jaiyanth Daniel. This course will explore the fascinating world of proteins which are the nanomachines that are indispensable to life because of their catalytic and structural functions. Students will learn the principles governing protein function and get an integrated view of proteins at the molecular, cellular and systemic level.

FNR 10300- "Introduction to Environmental Conservation" is an approved General Education Category B course will be taught in Summer II (MTR 10:00 am-12:20 pm). This course will cover introduction to ecological principles, history of conservation, natural resource management, human impacts on the environment, and environmental ethics.

BIOL 30400- "Major Ideas in Biology" now fulfills a General Education Area VI (Inquiry and Analysis) and the following competencies: A. Speaking and Listening Competency. Use appropriate organization or logical sequencing to deliver an oral message, and B. Scientific Ways of Knowing Competency: 1. Explain how scientific explanations are formulated, tested, and modified or validated. 2. Distinguish between scientific and non-scientific evidence and explanations. 3. Apply foundational knowledge and discipline-specific concepts to address issues or solve problems. 4. Locate reliable sources of scientific evidence to construct arguments related to real world issues.

FACULTY NEWS

FACULTY PROMOTION

Associate Professor Ahmed Mustafa has been promoted to full Professor of biology. This promotion will be in effect beginning August, 2014.

FACULTY AWARDS

Undergraduate student advisor Julie Feightner has been awarded with the 2014 Bruening Academic Advising Award from the College of Arts and Sciences.

Associate Professor Mark Jordan has been named the recipient of the Faculty of the Year Award 2014 by Tri-Beta, Biological Honor Society, Xi-Epsilon Chapter.

Associate Professor Ahmed Mustafa received the "Friends of the University Outstanding Teacher Award 2014" for his commitment to organization of materials, enthusiastic presentation, clear delivery, and an awareness of the ways in which student attention spans and class interactions function. This award will be officially conferred at the Chancellor's Convocation on Monday,

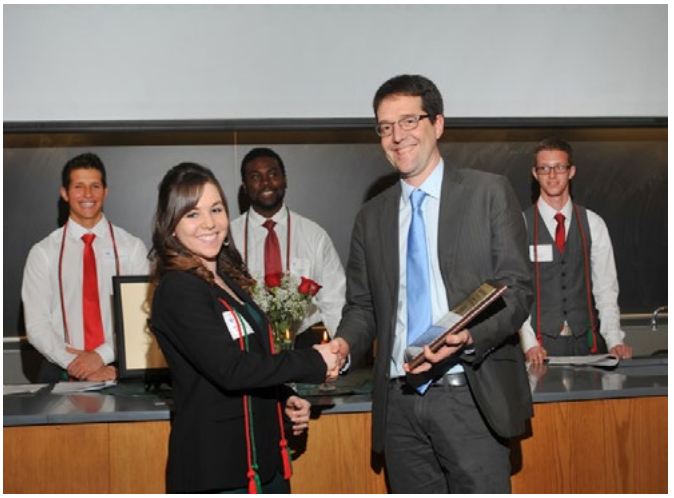
FACULTY RESEARCH GRANTS

Assistant Professor Jaiyanth Daniel has received a summer grant for research entitled “Investigating the Biochemical Pathways of Lipid Metabolism in the Human Pathogen Causing Latent Tuberculosis Disease” from Purdue University Research Foundation in the amount of $8,000.

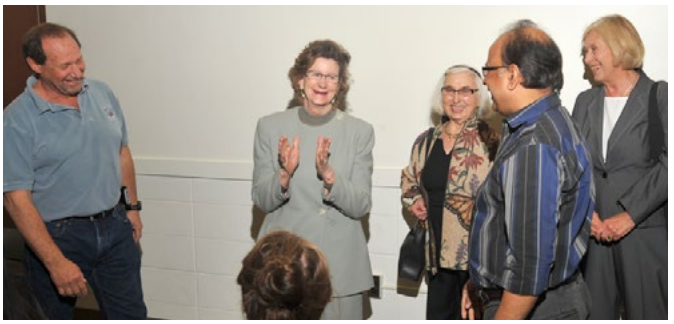
Assistant Professor Punya Nachappa and Christian Krupke have received a grant entitled “surveying Indiana Soybean for Soybean Vein Necrosis virus and evaluating new management practices” from the Indiana Soybean Alliance in the amount of $29,868.

Assistant Professor Tanya Soule has received an IPFW- CELT Summer Instruction Development Grant entitled

“The Dynamic Microbiology Classroom” in the amount of $2,000. Visiting Assistant Professor Vamsi Nalam and Christian Krupke have received a grant entitled “Engineering A Host Defense Regulatory Gene, PHYTOALEXIN DEFICIENT4 (PAD4) For Enhancing Resistance to Soybean Aphid” from the Indiana Soybean Alliance in the amount of $27,923.



2014 Tri-Beta award recipient Associate Professor Mark Jordan with Xi-Epsilon Chapter Officers **Aldane Hoilett, Heidi Nissley, Destin Furnas, and Michael Zijlstra** (Photo: Elmer Denman).



Chancellor Vicky Carwein along with the Friends of IPFW visited a class taught by Associate Professor Ahmed Mustafa to announce the “Friends of IPFW Outstanding Teaching Award 2014.” (Photo: Elmer Denman).

FACULTY ON SABBATICAL

Associate Professors Ahmed Mustafa and Winfried Peters will be on sabbatical in fall 2014. They will not be available for student advising for the Spring/Summer 2015 semester. If you need to speak to an advisor and your advisor is on sabbatical, please call the Biology office at 481-6305. The secretaries will direct you to another advisor who will be able to help you. You can also stop in the office, located in the Science Building, Third Floor, Room 330.

RECENT BIOLOGY PUBLICATIONS

Hossain. M. R. and Mustafa, A. 2014. Effects of puerarin on the modulation of health in chronically stressed Chinook salmon *(Oncorhynchus tshawytscha)*. Journal of Applied Aquaculture 26: 1-13.

Jordan, M. A., **Perrine-Ripplinger, N.,** and **Carter, E.T. 2014**. An Independent Observation of Facultative Parthenogenesis in the Copperhead *(Agkistrodon contortrix)*. Journal of Herpetology (In press).

Peters, W. 2013. Long-distance translocation of photosynthates: a primer. Photosynthesis Research vol. 117, 189-196.

Peters, W. 2014. SEORious business: structural proteins in sieve tubes and their involvement in sieve element occlusion. Journal of Experimental Botany (In press: available on the website).

Visalli, R.J. and **Howard, A.J.** 2014. Non-axial view of the Varicella-zoster virus portal protein reveals conserved crown, wing and clip architecture. Intervirol. 57(2), 121-125.

RECENT BIOLOGY PRESENTATIONS

Anderson, Z. and M. A. Jordan. 2014. Stream Channelization and the Genetic Diversity of Creek Chubs *(Semotilus atromaculatus)*. 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Chanthavane, X., Nachappa, P., and Nalam, V. 2014. Engineering Host Defense Regulatory Genes for Enhancing Resistance to Soybean Aphid *(Aphis glycines Matsumura)*. 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Culkin, C., Nalam, V., and Nachappa, P. 2014. Drought stress in soybean: Impacts on soybean aphid populations *(Aphis glycines Matsumura)* and Soybean mosaic virus infection. 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Hartsuff, A. C. and M. A. Jordan. 2014. Molecular Genetic Assessment of Population Structure of Copperheads *(Agkistrodon contortrix)* in Southern Indiana. 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Hartsuff, A. C. and M. A. Jordan. 2014. Molecular Genetic Assessment of Population Structure of Copperheads *(Agkistrodon contortrix)* in Southern Indiana. Tri-Beta District Northeast 4 Convention. University of Findlay, Findlay, OH. 29 March 2014.

Jordan, M. A. 2014. Integrative Service Learning in Biology Aids Wetland Restoration. 4th Annual Indiana Campus Compact Service Engagement Summit. Indianapolis, IN. 28 March 2014.

Jordan, M. A. 2014. Problem-based learning in undergraduate courses: Extending the service-learning paradigm." Indiana Campus Compact 4th annual Summit Engagement for Service Learning Conference. Indianapolis. March 27-28, 2014.

Jordan, M. A., **Perrine-Ripplinger, N.,** and **Carter, E.T. 2014.** Parthenogenesis in the Copperhead *(Agkistrodon contortrix)*. 129th Annual Meeting of the Indiana Academy of Sciences. Indianapolis IN. 15 March 2014.

Keough, S., Danels, L., Culkin, C., Nalam, V., and Nachappa, P. 2014. Contrasting Plant Defense Responses against Insect Vectors from Two Feeding Guilds. Indiana Academy of Sciences Annual Meeting, Indianapolis, IN and 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Koval, J., M. A. Jordan, and F. V. Paladino. 2014. Using Microsatellites to Investigate the Population Structure of Olive Ridley Turtles *(Lepidochelys olivacea)* Nesting Solitarily and in Arribada Assemblages in Costa Rica. 34th Annual Symposium on Sea Turtle Biology and Conservation. New Orleans, LA. 14-16 April 2014.Millspaw, N. and M. A. Jordan. 2014. Low Genetic Variability Across the Geographic Range of the Blanding's Turtle (Emys blandingii). 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Mustafa, A. and **Hough, T.** Effects of Omega-3 fatty acid supplementation on aquaponic system raised tilapia *(Oreochromis niloticus x Orechromis aureus)* physiology, immunology, and muscle tissue retention. Proceedings of Asia Pacific Aquaculture 2013, Ho Chi Minh City, Vietnam, December 10-14, 2013.

Nachappa, P. 2014. Ecology and management of soybean pests and diseases. Department of Plant Science, South Dakota State University, Brookings, SD, Spring Seminar Series, Invited seminar.

Nissley, H. and Ahmed Mustafa. Finding the best practice to measure macrophage functions. Proceedings of the 129th Annual Meeting of the Indiana Academy of Science, Indianapolis, IN, March 15, 2014.

Shannon, R., Ayon, N., and Mustafa, A. Immunological and Physiological Responses of Sea Urchins Exposed to Salinity and Handling Stress. 17th Annual Student Research and Creative Endeavor Symposium, Indiana University-Purdue University Fort Wayne. 28 March 2014.

Shannon, R., Ayon, N., and Mustafa, A. Cell Immunological Responses in Sea Urchins Exposed to Salinity and Handling Stress. Proceedings of the Indiana Branch of the American Society for Microbiology 2014, Turkey Run State Park, IN, March 28-29, 2014.

Shannon, R., Ayon, N., and Mustafa, A. Physiological and Immunological Responses of Sea Urchins Exposed to Salinity and Handling Stress. Proceedings of the 129th Annual Meeting of the Indiana Academy of Science, Indianapolis, IN, March 15, 2014.

Sasha Teztlaff and **Michael Ravesi** presented "Clearing the Way for Snake Conservation: Timber Harvest and Fire as Management Tools for the Eastern Massasauga." American Association of Zookeepers Guest Lecture Series at the Fort Wayne Children's Zoo.

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DEPARTMENT OF BIOLOGY

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BIOscope *is an information bulletin published three times during the academic year by the IPFW Department of Biology. It is posted electronically in PDF format on the Department of Biology website (IPFW.edu/biology). Students wishing to submit items for the next issue should contact the editor, Professor Ahmed Mustafa, at 481-6328 or mustafaa@ipfw.edu.*