# FY2013 DEPARTMENTAL ANNUAL REPORT OF CONTINUOUS IMPROVEMENT

**Department of Biology**
**Fort Hays State University**
**Prepared by**
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## I. DEPARTMENTAL OVERVIEW

### A. Departmental Mission and Vision Statements

The mission of the Department of Biological Sciences is encompassed within the mission of the University as a whole and focuses on the primary functions of instruction, scholarship, and service. The Department of Biological Sciences is committed to excellence in instruction, scholarship, and service.

These three functions are inextricably intertwined but, instruction serves as the basis common to all. Instruction provides educational opportunities that enable students both to understand essential concepts within individual biological sub-disciplines and the ability to connect those concepts to provide a holistic understanding of biology. The Department provides graduates with an excellent information base of both analytical and communication skills. Graduates of the Department are attractive to employers and successful in obtaining placement in programs of advanced study. The Department includes an array of biological sub-disciplines, including the following:

1. Botany
2. Cellular/Molecular Biology
3. Conservation Biology
4. Environmental Biology
5. Fisheries
6. Medical Technology
7. Pre-Dental and Medical
8. Pre-Occupational Therapy
9. Pre-Physical Therapy
10. Range Conservation
11. Secondary Education
12. Wildlife Biology
13. Zoology

The primary mission of the Department is to provide excellent instruction in the biomedical sciences, modern organismal biology (in which this Department is unique in the region), traditional biology including secondary education, general science, and graduate studies. Furthermore the

Department serves the University by providing quality instruction in the areas necessary to serve other majors and the general education program. The Department cooperates with the Department of Health and Human Performance in preparing students for entry into professional programs in Physical Therapy and in Occupational Therapy. The Department delivers key foundational courses for students of Nursing and in the Allied Health programs in Radiological Technology and Medical Diagnostic Imaging. Furthermore the Department serves the University by providing quality instruction for the general education program.

Instruction is the major responsibility of non-administrative personnel of the Department, including not only classroom instruction, but also state of the art laboratory and field instruction as well. The Department's mission is to use the latest instructional technology while maintaining quality teaching.

All faculty members are involved in scholarship and service, but the extent of each varies with the capability and expertise of the individual faculty members and the nature of the sub-disciplines involved. A close alliance with the Sternberg Museum of Natural History and the Kansas Wetlands Education Center provides opportunities for many Departmental functions of instruction, scholarship, and service. The Department is committed to serving the institution, the community, people of the region, and professional organizations, and to fulfill the University's mission of service.

To maintain the graduate program mission and scientific vigor of the Department, there is a strong emphasis on research as an essential component. The Department provides opportunities for both undergraduates and graduates to participate in professional activities both on and off campus.

**B. Departmental Goals, Objectives, and Strategic Priorities**

Goals and Objectives

1. To continue to provide undergraduate students with the best education in biology in the region.
   Related objectives:
   - A. To provide opportunities for students to apply what they learn in the classroom, in field, laboratory, and professional settings.
   - B. To provide research opportunities for students.
   - C. To provide opportunities for student oral and poster presentations outside the classroom.
2. To provide students with professional training.
   Related objectives:
   - A. To continue to prepare graduates who are competitive for employment within the region and nation.
   - B. To encourage students to progress to doctoral and professional programs.
3. To foster faculty development by providing opportunities for active participation in professional organizations.

Strategic Priorities

- to develop State Wildlife Grants with the Kansas Department of Wildlife and Parks to access non-game and game species
- to renovate the cadaver lab, which we expect will come from FHSU monies
- to develop AH 168 as a research and teaching space for molecular biology

- to develop research on the Quivira National Wildlife Refuge and Kirwin National Wildlife Refuge
- to develop a monitoring and data analysis for species in Kansas in conjunction with the Kansas Department of Wildlife, Parks, and Tourism in the southwestern portion of the state
- to develop the KAMS program
- to develop a significant increase in undergraduate research projects

**C. Department Productivity and Distinctive Accomplishments**

- Faculty and Graduate Students have received 34 grants and contracts totaling $887,330.
- We taught the first virtual college lab course in BIOL 120 Laboratory Experiences in Biology by Ms. Hilary Gillock and two graduate assistants Karina Barrett and Jeff Carter.
- Dr. Rich Packauskas 2012 President's Distinguished Scholar Award.
- Dr. Rob Channell 2012 Outstanding faculty of the Year Award.
- Faculty and students have published 10 papers.
- Undergraduate Range Management Exam team (Chandra Devine, Helena Harmison, and Adam Rusk) finished 5$^{th}$ out of 26 teams at the Society of Range Management Annual Meeting in Oklahoma City, OK.
- Mr. Adam Rusk finished second in the individual competition for URME at the SRM meeting.
- Mr. Brian Tanis received a Presidential Award from the American Society of Mammalogists for his service to the society in preparing the mammal of the week for their Facebook page.
- Drs. Greg Farley, Jordge LaFantasie, Rich Packauskas, and Bill Stark along with the following graduate students: Jessica Casey, Chris Baroody, Nina Haro, Brad Bott, Brian Serpan, Ryan Schofner, Ian Cost, and Jeff Carter and undergraduate students: Keri Caudle, Kyle Broadfoot, and Adam Rusk did the BioBlitz for Quivira National Wildlife Refuge.
- Mr. Scott Schmidt Webmaster for the Central Plains Society of Mammalogists.
- Mr. Brian Zinke student representative to the Central Plains Society of Mammalogists.
- Dr. Rob Channell Resources Coordinator for the International Biogeography Society.
- Mr. Justin Kerby II received the Fleharty Fellowship.
- Mr. Jared Oyster received the Fleharty Fellowship.
- Mr. Clinton Helms received a Kansas Department of Wildlife, Parks and Tourism Chickadee Checkoff Grant
- Mr. Mark Eberle Southwestern Association of Naturalist Board.
- Dr. Greg Farley is a Council Member for the Wilson Ornithological Society.
- Dr. Greg Farley 48$^{th}$ year of population data collected on migratory birds at FHSU Banding Site.
- Dr. Elmer J. Finck Board chaired the Membership Committee and Graduate Student and Education Committee for the American Society of Mammalogists.
- Mr. Brian Zinke received the Jerry R. Choate Fellowship.
- Mr. Clinton Helms received a Nature Conservancy Research Grant.
- Ms. Joanna Fay received the Balthazor Fellowship.
- Dr. Jordge LaFantasie President of the Kansas Section for Range Management.
- Dr. Jordge LaFantasie Board member of Kansas Grazing Lands Coalition.

- Dr. Jordge LaFantasie Rangeland Invasive Species Committee for Society for Range Management.
- Dr. Jordge LaFantasie Natural Resources Conservation Service Land Resource Area 73 Technical Committee.
- Dr. Richard Packauskas President FHSU Phi Kappa Phi.
- Dr. Richard Packauskas is a Member-at- large for AAUP.
- Dr. Richard Packauskas Treasurer, International Heteropterists Society.
- Dr. William Stark Chair of the Kansas Nongame Advisory Council to the Kansas Department of Wildlife and Parks.
- Kansas Academy of Math and Science (KAMS) students Ms. Hayley and Mr. Quentin Aker won second prize in Division I (grades9-12) qualifying them for the International Science and Engineering Fair, AZ. They also won the following: 1st place in the Botany category, U.S. Stockholm Junior Water regional winner, U. S. Army certificate, and Kansas BioScience award winner.
- Ms. Kerri Caudle 3rd place oral presentation by an undergraduate student at the Kansas Academy of Science meeting in Overland Park, KS.
- Ms. Amanda Cheeseman Caudle 3rd place oral presentation by a graduate student at the Kansas Academy of Science meeting in Overland Park, KS.
- Ms. Kerri Caudle 2nd place poster by an undergraduate student at the Kansas Academy of Science meeting in Overland Park, KS.
- Ms. Bliss Betzen 3nd place poster by an undergraduate student at the Kansas Academy of Science meeting in Overland Park, KS.
- The Rangeland Conservation Planning (BIOL 634) lead by Dr. Jordge LaFantasie took a field trip to Yellowstone National Park. Other attendees included: Ms. Nina Luna, Ms. Kasandra Brown, Ms. Jessica Casey, Ms. Andree Brisson, Mr. Anthony Luna, Mr. Clinton Helms, MS. Christina Khim, Ms. Sarah Bailey, and Mr. Kyle Broadfoot.
- Undergraduate Research Day at the Capitol Building in Topeka April 2, 2013 highlighted the research of Ms. Kerri Caudle, Mr. Jeff Carter, Ms. Hayley Disney, and Mr. Quentin Aker.
- Mr. Brad Bott took 3rd place among all presenters for his presentation on the “Investigation of the gut flora of a western Kansas dung beetle (*Canthon pilularius*)”.
- Ms. Karli Henning and Ms. Julie Weber each received the Robert Noyce Sholarship for $12,000.
- Ms. Jen Klaus received the Outstanding GTA award from both the Department of Biological Sciences and the Graduate School.
- Ms. Joanna Fay received an Outstanding Thesis Award from the Graduate School.
- Ms. Amanda Cheeseman an Outstanding Thesis Award from the Graduate School.
- Ms. Joanna Fay received her MS for her thesis entitled “Antimicrobial-producing bacteria isolated from petroleum-laced hypersaline soil”.
- Mr. Justin Kerby II received his MS for his thesis entitled “ Effects of long-term exposure to kanamycin and/or ampicillin on resistance genes on the *E. coli* plasmid”.
- Mr. Jeffrey Sekavec received his MS for his project entitled “Chorhexidine resistance exhibited in a Gram-negative bacterium.

- Ms. Amanda Cheeseman received her MS for her thesis entitled "Stable isotope analysis of two Mephitidae species reflect population trends and landscape structure".
- Ms. Amanda Cheeseman has been accepted into a PhD program under the tutelage of Dr. Jonathan Cohen at the State University of New York College of Environmental Sciences and Forestry, Syracuse.
- Mr. Brian Tanis received his MS for his thesis entitled "Influence of wind turbines on mammalian occupancy patterns".
- Mr. Brian Tanis has been accepted into a PhD program in Zoology under the tutelage od Dr. Rebecca Terry at Oregon State University.
- Ms. Sarah Rages received her MS for her project entitled "Morphological systematics of *Pimephales*".
- Mr. Mark Eberle delivered "SWANsong 2013 in 4D: A new pair of glasses" as past-president of the Southwestern Association of Naturalist at the Lake Charles, LA meeting.
- Ms. Abigail Pflughoeft was accepted into the University of Kansas Medical School.
- Ms. Madison Edwards was accepted into the Medical Technology Program at Wichita State University.
- Ms. Kerri Caudle was awarded an EPA Undergraduate Fellowship for $37,796.
- Mr. William Moore received his MS for his thesis entitled "Continual passage of *Staphylococcus epidermidis* in subinhibitory levels of the biocide triclosan in the minimum inhibitory concentration, antibiotic resistance, and ethidium bromide resistance".
- Ms. Carol Grover-Mariner received her MS for her thesis entitled "Burrowing owl (*Athene cunicularia*) ecology in western Kansas".
- Mr. Brain Tanis received the Outstanding Master's presentation Award at the Central Plains Society of Mammalogists meeting in Cape Girardeau, MO.
- Ms. Amanda Cheeseman received a Student Travel Grant to attend the 19$^{th}$ Annual Conference of The Wildlife Society in Portland, OR.
- Undergraduates Mr. Jeff Seim, Ms. Patrice Betz, Mr. Samuel Smith, Ms. Whitney Taylor, Ms. Brianna Watkins, Ms. Kasandra Brown, and Mr. Shaun Suppes.

## II. DEPARTMENTAL PERFORMANCE METRICS

### A. Department Performance Indicators

| Key Performance Indicator | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 |
|---|---|---|---|---|---|
| **Freshmen** | **48** | **61** | **45** | **64** | **66** |
| Biology (BS/302-0401) | 46 | 58 | 45 | 63 | 66 |
| General Science (BS/302-4902) | 2 | 3 | 0 | 1 | 0 |
| **Transfer Students** | **15** | **14** | **22** | **30** | **18** |
| Biology (BS/302-0401) | 13 | 14 | 22 | 28 | 18 |
| General Science (BS/302-4902) | 2 | 0 | 0 | 2 | 0 |
| **Undergraduate (first majors/second majors)** | **177** | **203** | **193** | **216/12** | **221/9** |
| Biology (BS/302-0401) | 163 | 187 | 174 | 200/11 | 203/6 |

| Key Performance Indicator | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 |
|---|---|---|---|---|---|
| General Science (BS/302-4902) | 14 | 16 | 19 | 16/1 | 18/3 |
| **Graduate Majors** | **28** | **26** | **29** | **34** | **29** |
| **Major Retention** | **74.47%** | **72.34%** | **58.62%** | **70.45%** | **61.90%** |
| **Undergraduate Student Credit Hours** | **6723** | **6772** | **7455** | **7698** | **8857** |
| **Graduate Student Credit Hours** | **510** | **454** | **437** | **518** | **419** |
| **Tenured or Tenure-track Faculty (Headcount)** | 10 | 10 | 11 | 11 | 11 |
| **Non Tenure-Track Faculty (Headcount)** | 2 | 2 | 2 | 1 | 2 |
| **Undergraduate Degrees** | **23** | **26** | **30** | **19** | **27** |
| Biology (BS/302-0401) | 20 | 22 | 19 | 13 | 17 |
| General Science (BS/302-4902) | 3 | 4 | 11 | 6 | 10 |
| **Graduate Degrees** | **9** | **8** | **6** | **10** | **8** |
| Undergraduate student credit hours increased 15.1%. Undergraduate degrees awarded increased 42.1%. | | | | | |
| Number of books, book chapters, and **refereed** articles published | 14 | 6 | 14 | 7 | 10 |
| Percent of faculty publishing **refereed** books, chapters, or articles | 60% | 41.7% | 75% | 41.7% | 58.3% |
| Number of **non-refereed** articles and presentations | 35 | 54 | 53 | 56 | 97 |
| Percent of faculty publishing **non-refereed** articles or presentations | 66.7% | 90% | 66.7% | 83.3% | 83.3% |
| Number of scholarly performances and other creative activities | | | | | |
| Percent of faculty in scholarly performances or other creative activities | | | | | |
| Total number of external grant applications submitted/percent of faculty submitting | 22/50% | 21/60% | 48/64.5% | 46/91.7 | 40/66.7% |
| Total number of funded external grants/percent of faculty funded | 18/60% | 21/90% | 31/83.3% | 35/75% | 34/66.7% |
| Total number students successfully completing an undergraduate research/creative project | | | | 9 | 19 |
| Grants have increased 31.9% from $672,977 to $887,330. Also, faculty submitting grants is near 100%. We are really pleased about the number of grants received by graduate students and undergraduate students. We had an emphasis on undergraduate research project and have increased 110%. | | | | | |
| [NOTE: Each department MUST report at least two direct measures of student learning outcomes and two indirect measures. Examples of direct measures include: first-time pass rate or average scores on standard exit exam, number of students successfully completing reviewed portfolios. Indirect measures would include student satisfaction, alumni and employer data, or any other perception based data.] | | | | | |
| Direct Outcome 1<br>Number of students giving presentations at professional meetings. | | 15 | 18 | 24 | 27 |
| Direct Outcome 2<br>Number of outstanding student presentation awards | | 5 | 8 | 3 | 14 |

| Key Performance Indicator | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 |
|---|---|---|---|---|---|
| Indirect Indicator 1<br>Number of students expressing satisfactions with their degree | | 4 | 8 | 10 | 15 |
| Indirect Indicator 2<br>Number of employers expressing appreciation for the skills of our students | | 4 | 8 | 6 | 8 |
| Dept senior students' Level of Academic Challenge | 54.65<br>61.08 | 55.9<br>57.00 | 56.4<br>60.97 | 56.2<br>58.54 | 58.5<br>61.98 |
| Dept senior students' Active and Collaborative Learning | 45.34<br>56.49 | 46.1<br>50.09 | 43.9<br>56.93 | 44.5<br>51.41 | 45.1<br>49.83 |
| Dept senior students' Student-Faculty Interaction | 45.34<br>54.00 | 41.0<br>46.56 | 38.5<br>56.82 | 38.4<br>50.00 | 38.6<br>60.00 |
| Dept senior students' Enriching Educational Experiences | 34.72<br>29.50 | 34.0<br>32.34 | 32.9<br>38.26 | 32.7<br>39.37 | 34.00<br>45.83 |
| Dept senior students' Supportive Campus Environment | 59.57<br>60.19 | 60.3<br>62.12 | 60.8<br>65.59 | 59.8<br>66.67 | 61.9<br>82.87 |
| Number of NSSE participants | 11<br>23% | 22<br>56% | 22<br>42.3% | 11<br>22.92% | 7<br>16.3% |
| While number of students giving presentations increased a modest 12.5% those receiving presentation awards for their presentations increased 366.67% and thus quality greatly increased. | | | | | |
| [NOTE: Departments may pick up to three key performance indicators they currently measure but are not captured above. These measures could be used to track departmental results on specific yearly goals. Examples might include: number of SRPs attended, number of new freshmen contacted. (These will vary by department based on goals.)] | | | | | |
| Outcome/Indicator 1<br>Number of faculty actively involved with professional organizations | 9 | 9 | 8 | 8 | 7 |
| Outcome/Indicator 2<br>Number of students attending professional meetings | 71 | 74 | 62 | 53 | 54 |
| Outcome/Indicator 3<br>Number of invited faculty seminars | 4 | 4 | 6 | 4 | 5 |
| These indicators remain stable from last year. | | | | | |

## B. Department Quality Initiatives and Results

| FY2013 Quality Initiatives | Results |
|---|---|
| Develop protocol to establish biotechnology research at FHSU | Dr. Sam Zwenger has begun developing a lab to accomplish this goal. He presently has two undergraduate, Brandon McCampbell and Jared May, working on this project. He is developing a research grant to accomplish this. Two undergraduate presentations have developed from this effort. |
| Develop protocol to assist the Kansas Department of Wildlife, Parks and Tourism to monitor | Dr. Elmer J. Finck with graduate student Jared Oyster have accomplished the first year of this project. To date $20, 900 have been secured for funding and three graduate student presentations have been given at state, |

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| populations of pronghorn (Antilocapra americana) | regional, and international levels. . |

| FY2014 Quality Initiatives | Responsible Party, Resources, and Plan |
|---|---|
| To investigate effects of fracking and other energy development methods on the shrews and other small mammals of western North Dakota. | Dr. Elmer J. Finck in conjunction with graduate student, Samantha Pounds from FHSU and Dr. Michael J. Shaughnessy Jr. from Dickinson State University are developing research protocols and seeking funding of about $150,000. Habitat assessment relative to energy development will be examined relative to population sizes and community structure of small mammals, particularly shrews. |
| To investigate the effects of an invasive species, whit perch (*Morone americana*), on the sport fisheries of two Kansas lakes, Cheney and El Dorado. | Dr. Bill Stark and two graduate students, Scott Brack and Brian Serpan, are developing protocol and seeking about $125,000 of funding to do this project in the two lakes listed. |

### C. Institutional Quality Results

| FY2013 University Initiatives | Department Activities/Results |
|---|---|
| Align Programs and Services with North Central Kansas Technical College (NCKTC) | We are coordinating face to face teaching of three courses BIOL 100 Human Biology, BIOL 102 Laboratory Experiences in Biology, and BIOL 245 Medical terminology during the summer session. This is being led by Dr. Bennett, Finck, and Kobayashi. Began Summer of 2012 and is ongoing. |
| Increase Enrollment | In the fall of 2012 we hired Ms. Hilary H. Gillock, to coordinate our efforts in recruitment for the service component of her instructorship. To date she has developed a protocol and we are monitoring incoming Freshman enrollment. |
| Improve Persistence and Retention | We have just begun to explore efforts with Persistence under the leadership of Dr. Farley and Ms. Gillock. For Retention, we are trying to follow the block scheduling and monitoring responses to Freshman Seminar. We expect our Retention to increase by following the block scheduling, but anticipate Persistence will decrease because of the increased load of science course later in students' academic careers. However, we hope some of this will be offset from what students learn in Freshman Seminar. |
| Improve Student Learning | Dr. Channell is taking the lead by examining Educational Open Resources and hybrid courses, which he thinks will improve student learning. |

## III. FY2013 STRATEGY AND OPPORTUNITIES FOR IMPROVEMENT

### A. Departmental Reflection of Strengths, Needs, Opportunities, and Threats

| Current Strengths | Current Needs |
|---|---|
| • Overall strong, supportive collaborative environment with good cooperation among faculty, teamwork (sharing equipment, conducting collaborative project, etc.), and congenial | • Retention of majors with the high standards needed to complete a degree in biology<br>• The weakest areas of the Department presently physiology, molecular biology, and botany |

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| atmosphere<br>• Broad range of expertise interests among the faculty and graduate students<br>• Faculty are active in conduction research in their areas of expertise<br>• State of the art equipment and other resources are available for the conduct of research<br>• The Department has a strong focus on the success of undergraduates by encouraging them to participate in research | • Addition of research space in AH 168<br>• Develop on-line service courses and major courses<br>• Develop Educational Open Resources for our general education courses and our entrance level majors course. |
| **Future Opportunities** | **Future Threats** |
| • Cheyenne Bottoms Visitor Center<br>• KAMS Education Specialist Position<br>• Interdisciplinary degree – BA or BS in Environmental Science<br>• Recruitment of minority groups in western Kansas<br>• Undergraduate research participation | • Variation in academic expectations among departments on campus, rigorous standards (such as Biology) causes a disadvantage in recruiting and retaining majors<br>• Loss of faculty positions<br>Changing demographics of the region – fewer high school |

## B. Opportunities for Improvement

We are presently developing six strategic initiatives 1) to develop biotechnology expertise for graduate and undergraduate students, 2) to develop State Wildlife Grants with the Kansas Department of Wildlife, Parks and Tourism (KDWP&T), 3) to renovate the cadaver lab, which we expect will come from FHSU monies, 4) to develop AH 168 as a research and teaching space for molecular biology, 5) develop research on the Quivira National Wildlife Refuge and Kirwin National Wildlife Refuge, 6) to develop of a monitoring and data analysis for species in Kansas in conjunction with the Kansas Department of Wildlife and Parks (KDWP&T), 5) to develop the KAMS program, and 6) to develop the PSM – Biology.

| Opportunity for Improvement | Resources Required | Expected Result and Completion Date |
|---|---|---|
| Develop Biotechnology expertise for graduate and undergraduate students | One or two faculty with such expertise | Hired Dr. Sam Zwenger. Ongoing |
| Kansas Department of Wildlife, Parks and Tourism | OOE for travel, GRA and Grassland Ecologist | Working to develop State Wildlife Grants. Ongoing |
| Renovation of the Cadaver Lab | $250,000.00 | To cut the lab into two separate labs one for the cadavers-based instruction and one for other anatomy/physiology related research. Fall 2011 |
| Development of a molecular biology | Access to AH 168 and renovation of that space $100,000 | Given the Congressional Grant of $100, 00 for molecular biology equipment, we now need clean space to house the equipment and |

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| | | use it in research and teaching. Fall 2012 |
| Quivira National Wildlife Refuge and Kirwin National Wildlife Refuge | $200,000 | Provide students and faculty with opportunities to study prescribed fire effects on invasive species and native species. Fall 2012 |
| KDWP Long term Monitoring Network and data analysis for the mixed-grass and short grass prairie | $500,000 annually, faculty position in bioinformatics | Assist the KDWP with the development of monitoring and analysis of species across the state, which will provide graduate and The weakest areas of department presently are physiology and molecular biology undergraduate research opportunities. Fall 2011 |
| Development of the KAMS program | New faculty position that specializes in secondary education and/or middle school | New research projects with KAMS students, undergraduate, and graduate students. Fall 2011 |
| Development of the PSM Program | New faculty position with expertise in molecular biology | New research project to aid the development of entrepreneuralship and management within biology. Fall 2011 |

# IV. SUPPORTING MATERIALS

## A. Department Degree Program Affinity Diagram(s)

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| Biology majors are:<br>• Knowledgeable<br>They understand the nature of life and its requirements as well as how it is applied in the context of human endeavors such as medicine, teaching, and managing natural resources.<br>• Analytical<br>They understand the process of science. They have analytical/critical skills (enabling them to use their acquired knowledge to integrate in new biological information), strong analytical skills.<br>• Flexible/Adaptive<br>They have the generalist's ability to perceive relationships and to synthesize knowledge and information. They have the depth and breadth of knowledge to successfully adapt to new situations.<br>• Articulate<br>They have the ability to express themselves in biologically correct and effective oratory and written discourse.<br>• Insightful/Humane<br>They value scientific literature as a source for understanding and interpreting diverse human experience and for affirming our commonness with nature. They appreciate the diversity of nature and intellectual assets of fellow biologists.<br>• Creative<br>They value the role of the creative | ❖GOAL❖<br>To acquire knowledge of the basics of the biological sciences: the learner will be able to (1) describe the condition of that which distinguishes the living from non-living, (2) explain the basic structure and function of a prokaryotic and eukaryotic organism, (3) explain how life reproduce and evolves, (4) describe how biologists identify and organize the diversity of life, and (5) how life interacts with its environment on any scale of time.<br>❖GOAL❖<br>To implement the skills of the biological practitioner: the learner will be able to (1) operate the basic equipment necessary for work in the laboratory and field, (2) use basic numerical and statistical techniques to analyze and present data in standard biological format, (3) communicate in the rhetoric of the professional biologist.<br>❖GOAL❖<br>To apply knowledge of the sciences that are ancillary to biology: the learner will be able to (1), apply chemistry to biological problem solving (2), and use knowledge gained from cognate requirements to the emphasis of the major to, e. g. GSCI 435 Hydrology and Water Resources to fisheries biology.<br>❖GOAL❖<br>To obtain employment wherein the biological knowledge obtained is at the very worst not a handicap to success, and at the very best, is incalculable. | Core Curriculum Develops Basic Knowledge of Biology<br>Tier 1 Core<br>BIOL 222/222L Principles of Biology/Lab<br>BIOL 130/130L Introductory Botany/Lab<br>BIOL 150/150L Introductory Zoology/Lab<br>BIOL 625/625L Genetics/Lab<br><br>Core Cognates Develop Foundation Knowledge and Perspective<br>Tier 1 Core Cognates<br>CHEM 120/120L University Chemistry I/Lab<br>CHEM 122/122L University Chemistry II/Lab<br>MATH 331 Calculus Methods<br><br>Courses Develop/Implement Skills of Biological Practitioner<br>Tier 1 Core Cognate<br>MATH 331 Calculus Methods<br>Tier 2 Course<br>BIOL 520 Biometry<br><br>Develop Depth and Breadth of Biology Knowledge<br>Tier 2 Courses (All majors to have at least 4 of the following courses)<br>BIOL 520 Biometry<br>BIOL 524/524L Cellular Biology/Lab<br>BIOL 622/622L Ecology/Lab<br>BIOL 523 Evolution<br>BIOL 533/533L General Microbiology/Lab<br>*Anatomy: (only one of following will count towards tier two requirement)*<br>BIOL 351/351L Comparative Anatomy/Lab<br>BIOL 345/345L Human Anatomy/Lab<br>BIOL 331/331L Plant Anatomy/Lab<br>*Physiology: (only one of following will count towards tier two requirement)* |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| imagination of past and future scientists in providing the body of evidence for scientific understanding and processes of the acquisition thereof.<br>• Collegial<br>They are assertive, cooperative, and supportive of their colleagues. | | BIOL 346/346L Human Physiology/Lab<br>BIOL 534/534L Plant Physiology/Lab<br><br><u>Biodiversity/Conservation Option</u><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br><u>Tier 2 Courses:</u><br>BIOL 520 Biometry<br>BIOL 523 Evolution<br>BIOL 622/622L Ecology/Lab<br>*One additional Tier 2 Course*<br><u>Tier 3 Courses:</u><br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 567 Biodiversity and Conservation Biology<br>BIOL 599 Wildlife Management<br>*Animal Taxonomy Electives (3 from following):*<br>BIOL 527/527L Ichthyology/Lab<br>BIOL 543/543L Entomology/Lab<br>BIOL 550/550L Ornithology/Lab<br>BIOL 551/551L Mammalogy/Lab<br>BIOL 560/560L Herpetology/Lab<br>*Biology Electives (2 from following):*<br>BIOL 507 Topics in Biology: Behavioral Ecology<br>BIOL 531 Range Management<br>BIOL 536 Ecological and Range Techniques<br>BIOL 569 Landscape Ecology<br>BIOL 619/619L Aquatic Biology/Lab<br>*Related Sciences*<br><u>Tier 3 Cognates:</u><br>CHEM 304/304L Essentials of Organic Chemistry/Lab<br>*Cognate Electives (1 course from following)*<br>GSCI 240 Introduction to Geographic Information Systems<br>GSCI 200/200L Physical Geology/Lab<br>GSCI 340 Environmental Geology<br>AGRI 215/215L Soils/Lab<br><br><u>Bio/Medical Laboratory Option</u><br>*Biology Subjects Develop Depth and Breadth of Knowledge* |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | Tier 2 Courses:<br>BIOL 345/345L Human Anatomy/Lab<br>BIOL 346/346L Human Physiology/Lab<br>BIOL 520 Biometry<br>BIOL 524/524L Cellular Biology/Lab<br>Tier 3 Courses:<br>BIOL 533/533L General Microbiology/Lab<br>BIOL 648/648L Immunology/Lab<br>*2 additional courses from following:*<br>BIOL 506 Scanning Electron Microscopy - Theory and Operation<br>BIOL 542/542L Parasitology/Lab<br>BIOL 544/544L Embryology/Lab<br>BIOL 545/BIOL 507 Histology/Lab<br>*Related Sciences*<br>Tier 3 Cognates:<br>PHYS 111/111L Physics I/Lab<br>CHEM 304/304L Essentials of Organic Chemistry /Lab<br>CHEM 360/360L Essentials of Biochemistry/Lab<br><br>Botany Option<br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br>Tier 2 Courses:<br>BIOL 331/331L Plant Anatomy/Lab<br>BIOL 520 Biometry<br>BIOL 534/534L Plant Physiology/Lab<br>BIOL 622/622L Ecology/Lab<br>Tier 3 Courses:<br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 529 Agrostology<br>BIOL 532 Dendrology<br>BIOL 543/543L Entomology/Lab<br>*Biology Electives (3 from following):*<br>BIOL 506 Scanning Electron Microscopy - Theory and Operation<br>BIOL 523 Evolution<br>BIOL 524/524L Cellular Biology/Lab<br>BIOL 531 Range Management<br>BIOL 536 Ecological and Range Techniques |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | BIOL 540 Principles of Systematic Biology<br>BIOL 567 Biodiversity and Conservation Biology<br>BIOL 569 Landscape Ecology<br>BIOL 619/619L Aquatic Biology/Lab<br><br>*Related Sciences*<br><u>Tier 3 Cognates:</u><br>AGRI 215/215L Soils/Lab<br>CHEM 304/304L Essentials of Organic Chemistry/Lab<br>*Cognate Electives (1 course from following):*<br>GSCI 200/200L Physical Geology/Lab<br>GSCI 340 Environmental Geology/GSCI 102 Introduction to Geology Lab<br><br><u>Environmental Biology Option</u><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br><u>Tier 2 Courses:</u><br>BIOL 520 Biometry<br>BIOL 533/533L General Microbiology/Lab<br>BIOL 622/622L Ecology/Lab<br>*One additional Tier 2 course required*<br><u>Tier 3 Courses:</u><br>BIOL 221 Humans and the Environment<br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 556/556L Limnology/Lab<br>BIOL 567 Biodiversity and Conservation Biology<br>BIOL 569 Landscape Ecology<br>BIOL 619/619L Aquatic Biology/Lab<br>*Related Sciences*<br><u>Tier 3 Cognates</u><br>AGRI 215/215L Soils/Lab<br>CHEM 250/250L Chemical Analysis /Lab<br>CHEM 304/304L Essentials of Organic Chemistry/Lab<br>GSCI 240 Introduction to Geographic Information Systems<br>GSCI 435 Hydrology and Water Resources<br><br><u>Fishery Biology Option</u> |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | *Biology Subjects Develop Depth and Breadth of Knowledge*<br>Tier 2 Courses:<br>BIOL 520 Biometry<br>BIOL 622/622L Ecology/Lab<br>T*wo additional Tier 2 courses required*<br>Tier 3 Courses:<br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 527/527L Ichthyology/Lab<br>BIOL 556/556L Limnology/Lab<br>BIOL 567 Biodiversity and Conservation Biology<br>BIOL 619/619L Aquatic Biology/Lab<br>BIOL 655 Fisheries Management<br>*Related Sciences*<br>Tier 3 Cognates:<br>CHEM 304/304L Essentials of Organic Chemistry/Lab<br>GSCI 240 Intro to Geographic Information Systems (GIS)<br>GSCI 435 Hydrology & Water Resources<br><br>Medical Technology Option<br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br>Tier 2 Courses:<br>BIOL 346/346L Human Physiology/Lab<br>BIOL 533/533L General Microbiology/Lab<br>*Two additional Tier 2 courses required*<br>Tier 3 Courses:<br>BIOL 542/542L Parasitology/Lab<br>*One additional from the following:*<br>BIOL 507 Topics in Biology: Principles of Immunology<br>BIOL 648 Immunology<br>*Related Sciences*<br>Tier 3 Cognates:<br>PHYS 102/103 Physical Science/Lab (recommended)<br>*One from the following*:<br>CHEM 304/304L Essentials of Organic Chemistry/Lab<br>CHEM 340/340L Organic Chemistry I/Lab<br>*One from the following:*<br>CHEM 250/250L Chemical Analysis/Lab |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | CHEM 342/342L Organic Chemistry II/Lab<br>CHEM 360/360L Essentials of Biochemistry/Lab<br><br><u>Rangeland Conservation Specialist Option</u><br>*Biology -Subjects Develop Depth and Breadth of Knowledge*<br><u>Tier 2 Courses:</u><br>BIOL 520 Biometry<br>BIOL 622/622L Ecology/Lab<br>BIOL 534/534L Plant Physiology/Lab<br>*One additional Tier 2 Course required*<br><u>Tier 3 Courses:</u><br>BIOL 507 Topics in Biology: Field Study of Range Plants<br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 531 Range Management<br>BIOL 535 Range Planning<br>BIOL 536 Ecological and Range Techniques<br>BIOL 537 Range Condition & Improvement<br>BIOL 538 Range Plants<br>BIOL 567 Biodiversity and Conservation Biology<br>BIOL 599 Wildlife Management<br><br>*Related Sciences*<br><u>Tier 3 Cognates</u><br>CHEM 112/112L General Chemistry I/Lab<br>CHEM 114/114L General Chemistry II/Lab<br>AGRI 213 Pasture and Forage Crops<br>AGRI 215/215L Soils/Lab<br>GSCI 340 Environmental Geology<br>AGRI 510/510L Beef Cattle Production/Lab<br>AGRI 525 Soil and Water Management<br>AGRI 531/531L Development and Classification of Soils/Lab<br><br><u>Secondary Teaching Option</u><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br><u>Tier 2 Courses:</u><br>BIOL 520 Biometry<br>BIOL 523 Evolution |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | BIOL 533/533L General Microbiology/Lab<br>BIOL 622/622L Ecology/Lab<br><br><u>Tier 3 Courses:</u><br>BIOL 230 Human Anatomy and Physiology<br>BIOL 232 Anatomy of Humans Laboratory<br>BIOL 234 Physiology of Humans Laboratory<br>BIOL 476 Apprenticeship in Biology<br><br>*Professional Education Develops Teacher Preparation*<br><br>COED 202 Foundations of Education<br>BIOL 277 Early Field Experience<br>TEEL 431 Educational Psychology<br>TESS 494 The Secondary School Experience<br>TESS 496 Directed Teaching (Secondary)<br>BIOL 508 Teaching Methods in Biology<br>SPED 601 Educating Exceptional Students<br><br>*Applications Develop Requisite Skills*<br>PHYS 111/lllL Physics I<br><br><u>Wildlife Biology Option</u><br><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br><u>Tier 2 Courses:</u><br>BIOL 520 Biometry<br>BIOL 622/622L Ecology/Lab<br>*Two additional Tier 2 courses*<br><br><u>Tier 3 Courses:</u><br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 531 Range Management<br>BIOL 550/550L Ornithology/Lab<br>BIOL 551/551L Mammalogy/Lab<br>BIOL 567 Biodiversity and Conservation Biology<br>BIOL 599 Wildlife Management<br><br>*Related Sciences* |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | Tier 3 Cognates:<br>AGRI 215/215L Soils/Lab<br>GSCI 200/200L Physical Geology/Lab<br>GSCI 240 Introduction to Geographic Information Systems (GIS)<br><br>Zoology Option<br><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br>Tier 2 Courses:<br>BIOL 520 Biometry<br>BIOL 622/622L Ecology/Lab<br>*Two additional Tier 2 courses*<br>Tier 3 Courses:<br>BIOL 510/510L Taxonomy of Flowering Plants/Lab<br>BIOL 527/527L Ichthyology/Lab<br>BIOL 543/543L Entomology/Lab<br>BIOL 550/550L Ornithology/Lab<br>BIOL 551/551L Mammalogy/Lab<br>BIOL 560/560L Herpetology<br>BIOL 567 Biodiversity and Conservation Biology<br>*Two from the following:*<br>BIOL 507 Topics in Biology: Behavioral Ecology<br>BIOL 523 Evolution<br>BIOL 540 Principles of Systematic Biology<br>BIOL 569 Landscape Ecology<br>BIOL 599 Wildlife Management<br>*Related Sciences*<br>Tier 3 Cognates:<br>CHEM 304/304L Essentials of Organic Chemistry/Lab<br>*One elective from following:*<br>GSCI 200/200L Physical Geology/Lab<br>GSCI 240 Introduction to Geographic Information Systems (GIS)<br>GSCI 340 Environmental Geology<br><br>Pre-Physical Therapy Option<br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br>Tier 2 Courses: |

| ***Traits of a Biology Major*** | ***Expected Learning Outcomes*** | ***Curriculum*** |
|---|---|---|
| | | BIOL 345/345L Human Anatomy/Lab<br>BIOL 346/346L Human Physiology/Lab<br>BIOL 524/524L Cellular Biology/Lab<br>*One additional Tier 2 course*<br><br><u>Tier 3 Courses:</u><br>BIOL 241 Microbiology for Allied Health<br>BIOL 322 Human Heredity<br><br>*Related Sciences*<br><u>Tier 3 Cognates</u><br>PHYS 111/111L Physics I/Lab<br>PHYS 112/112L Physics II/Lab<br><br>*Skills*<br>MATH 122 Plane Trigonometry<br>HHP 220 Standard First Aid<br>MATH 250 Elements of Statistics<br><br><u>Pre-Forestry Option</u><br><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br>BIOL 510/510LTaxonomy of Flowering Plants/Lab<br>BIOL 532 Dendrology<br><br>*Related Sciences*<br>PHYS 111/111L Physics I/Lab<br>GSCI 200/200L Physical Geology/Lab<br>AGRI 215/215L Soils/Lab<br><br>*Skills*<br>AGRI 220 Agricultural Accounting<br>MATH 234 Analytic Geometry & Calculus<br>MATH 250 Elements of Statistics<br><br><u>Pre-Health Information Management Option</u><br><br>*Biology Subjects Develop Depth and Breadth of Knowledge*<br>BIOL 263 Medical Terminology<br>BIOL 345/345L Human Anatomy/Lab<br>BIOL 346/346L Human Physiology/Lab<br><br>*Skills*<br>ACCT 203 Financial Accounting |

| *Traits of a Biology Major* | *Expected Learning Outcomes* | *Curriculum* |
|---|---|---|
| | | ENG 246 Technical and Report Writing |

## B. Department Staffing Plan

Department of Biological Sciences Staffing Plan 2013-2014

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| Position Number | Projected Dept Needs | Faculty Member | Current Faculty Expertise | Assigned Instructional FTE | Current Rank (Date) | Degree | Track | Year Entered FHSU Service |
| | | | | | | | | |
| 118111-012 | Anatomy Physiology Cell Biology | Bennett, Chris | Anatomy Paleontology Evolutionary Morphology Biomedical Education | 1.0 | Associate Professor (2008) | PhD | Tenured | 2004 |
| 118111-017 | Conservation Biology/ Biogeography | Channell, Robert B. | Conservation Biology Biogeography GIS Statistics Landscape Ecology | 1.0 | Full Professor (2011) | PhD | Tenured | 1999 |
| 118111-013 | Mammalian Systematics | Open | Mammalian Systematics | 1.0 | Assistant Professor | PhD | Tenure Track | |
| 118111-004 | Biology/Lab Coordinator | Eberle, Mark E. | Biology Fisheries | 1.0 | Program Specialist (1996) | MS | Program Specialist | 1994 |
| 118111-009 | Ornithology | Farley, Greg H. | Ornithology Zoology Behavioral Ecology | 1.0 | Professor (2007) | PhD | Tenured | 1995 |
| 118111-001 | Administration Wildlife Biology | Finck, Elmer J. | Administration Wildlife Biology Mammalogy Human Dimensions Ornithology | 0.5 | Professor (2001) | PhD | Tenured | 2001 |
| 118111-018 | Microbiology | Gillock, Eric T. | Microbiology Virology Molecular Biology | 1.0 | Full Professor (2013) | PhD | Tenured | 2001 |
| 118111-002 | Biology/On-line Lab Coordinator | Gillock, Hilary H. | Entomology, On-line courses, Human | 1.0 | Lecturer (2012) | MS | Non-Tenured Tract | 2012 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Biology | | | | | |
| 118111-007 | Human Anatomy Physiology | Yasuhiro Kobayashi | Human Physiology Animal Physiology | 1.0 | Assistant Professor (2010) | PhD | Tenured | 2010 |
| 118111-006 | Plant Biologist | Maricle, Brian | Plant Physiology Ecophysiology | 1.0 | Associate Professor (2012) | PhD | Tenured | 2008 |
| 118111-015 | Entomology | Packauskas, Richard J. | Entomology Zoology Parasitology | 1.0 | Associate Professor (2001) | PhD | Tenured | 1995 |
| 118111-008 | Ichthyology | Stark, William J. | Ichthyology Stream Ecology Fisheries Management | 1.0 | Full Professor (2010) | PhD | Tenured | 1995 |
| 118111-014 | Range Ecology | Dr. Jordana LaFantasie | Range Management, Soils | 1.0 | Assistant Professor (2010) | PhD | Tenured Track | 2008 |
| 118111-005 | Botany | vacant | Plant Systematics, Molecular Biology | 1.0 | Assistant Professor | PhD | Tenure Track | |
| 118111- | Animal Physiology | projected | Animal Physiology Comparative Physiology | 1.0 | Assistant Professor | PhD | Tenure Track | |
| 118111- | Wetlands Biology | projected | Wetlands Biology Waterfowl Biology | 1.0 | Assistant Professor | PhD | Tenure Track | |

## C. Bibliography of Departmental Scholarly Activity

Bennett, S. C. 2012. The phylogenetic position of the Pterosauria within the Archosauromorpha re-examined. Historical Biology 2012:1-19.

Bennett, S. C. 2012. The morphology and taxonomy of the pterosaur *Cycnorhamphus*. N. Jb. Geo. Palaont. Abh. 267/1: 23-41.

Caudle, K. L., and B. R. Maricle. 2012. Effects of flooding on photosynthesis, chlorophyll fluorescence, and oxygen stress in plants of varying flooding tolerance. Transactions of the Kansas Academy of Science 115-5-18.

Farley, G. H. 2013. Review of Birds of Kansas by Thompson et al. university of Kansas Press (2011; 528 pages). Wilson Journal of Ornithology 125:227-228.

Leiker, J. A., E. R. Geising, and E. J. Finck. 2012. Field guide to Dr. Harold Reynolds Nature Trail. Sternberg Museum of Natural History Publication.

Owens, H., J. LaFantasie, and P. Adler. 2012. Mycorrhization rates of two grasses following alteration in moisture inputs in a southern mixed grass prairie. Applied Soil Ecology 60:56-60.

Packauskas. R. J. 2012. The Pentatomidae, or stink bugs, of Kansas with a key to the species. Great Lakes Entomologist 45:210-219.

Sexson, M. G., and G. H. Farley. 2012. Western snowy plover nest survival in Kansas and effective management to counter negative effects of precipitation. Journal of Wildlife Management 76:1587-1596.

Shingo, I., J. J. Bitner, G. H. Farley, and E. T. Gillock. 2013. Vancomycin-resistant gram positive cocci isolated from the saliva of wild birds. Current Microbiology 66:337-343.

Waring, E. F., and B. R. Maricle. 2012. Photosynthetic variation and carbon isotope discrimination in invasive wetland grasses in response to flooding. Environmental and Experimental Botany 77:77-86.

**D. Department Program Assessment Results**

**E. Other Departmental Information**

Department Brand Essence Statement

**Fort Hays State University**

**Department of Biological Sciences**

**Statements of Mission, Guiding Principles, Cores Values, and Strategic Priorities**

in all options within biology to develop the technical, analytical, critical thinking, collegial, and communications skills necessary for successful careers in biology including: botany, cellular/molecular, conservation, fisheries, medical technology, pre-forestry, pre-health information management, pre-physical therapy, range conservation, secondary education, wildlife, and zoology.

## Guiding Principles

While the primary emphasis is on quality instruction, Departmental faculty are involved in scholarly activity, and service to the university, profession locally, within the state and nationally, and community. Faculty involve both undergraduate students and

graduate students in scholarly and service projects. Coursework is delivered in the traditional on-campus environment as well as through the virtual environment to meet the need of students in western Kansas and beyond.

## Statement of Mission, Guiding Principles, Core Values, and Strategic Priorities

302 Albertson Hall,
600 Park Street
Hays, KS 67601-4099
785-628-4214 Fax: 785-628-4153
www.fhsu.edu/biology

## Core Values

### Quality

The Department maintains a strong commitment to high standards through continuous quality improvement efforts. Evaluation, assessment, and analysis are considered an integral part of the program culture. We have exit interviews of all our graduating undergraduate and graduate students.

### Change/ Innovation

The Department uses information gained from continuous evaluation, assessment and analysis to direct efforts. We consider change an integral part of the development of the Department. We strive to develop innovative teaching, service, and scholarship to assist our students in obtaining the best education possible.

### Collaboration

The Department has developed and continues to develop relationships with academic units on campus, stakeholder, and professional entities to promote the best for our students and faculty. We have cooperative agreements with The Nature Conservancy, the Kansas Department of Wildlife and Parks, the Kansas Chapter of The Wildlife Society, the Society for Range Management, and Li-Cor Corporation.

### Diversity/ Inclusiveness

The Department provides opportunities for all students and program participants and strives to ensure that graduates of the program value diversity and differences among individuals involved with biology. The Department also strives to ensure that students understand biodiversity as it relates to biology

### Service

The Department provides service to constituents such as the Central Plains Society of Mammalogists, the American Society of Mammalogists, the Southwestern Association of Naturalist, the North Dakota Natural Science Society, and numerous state professional groups.

### Lifelong Learning

The Department values continuous learning by fostering an environment that encourages lifelong learning for students, faculty, staff, and stakeholders through western Kansas. We provide learning workshops for professional biologists that teach participants about the recent innovations in biology.

## Strategic Priorities

The Department has received and accepted a donation of a DNA sequencer from Li-Cor and has developed the use of the instrument in teaching and scholarship.

The Department is developing a biotechnology/bioinformatics laboratory that is state of the art and will allow the Department to be active in scholarship involving DNA sequencing.

The Department is developing a research project to study invasive plants and its effect on grassland nesting birds and small mammals in western Kansas.

## General Parameters

1. No more than 20 pages, excluding appendix information.
2. Report submitted electronically to Dean, Assistant Provost for Quality Management, and Provost.
3. Note deadlines attached below.

## Annual Timeline for Department Annual Report

| | |
|---|---|
| April 1 | Final template and Directions distributed to Department Chairs. Selected enrollment data (fall 20th day counts) distributed to Chairs and Deans in the departmental template. |
| June 1 | Student system information (graduates, SCH) delivered to Chairs. Final cutoff date for elements to be considered in the Department's Annual Report. |
| June 30 | Complete Department Annual Report due to Deans, Assistant Provost for Quality Management, and Provost. Submit electronically. |
| August 15 | Completed College Annual Report due to Assistant Provost for Quality Management and Provost. |