FY2006 DEPARTMENTAL ANNUAL REPORT

OF CONTINUOUS IMPROVEMENT

Department of Biological Sciences

Fort Hays State University

Prepared by Dr. Elmer J. Finck

June 30, 2006

I. Departmental Overview

The Department features a full range of subdisciplines within the biological sciences from the study of molecules to landscapes. The Department recently added an Ecosystem Analysis Laboratory. We provide instruction and research opportunities in areas ranging from DNA sequencing to GIS applications for undergraduate students and graduate students. The major emphasis of the Department is natural history and understanding organisms in their environment. Of the 13 faculty 10 are involved with the study of this major emphasis. We also provide a full range of opportunities for medically oriented professions within biology. In co-operation with the Department of Chemistry, we provide opportunities for Pre-med students and in co-operation with the Department of Agriculture we provide opportunities for Pre-vet students. The Department provides instruction for the biological sciences that are the prerequisites in the other five departments within the College of Health and Life Sciences. We also provide a range of general education courses to meet the needs of students across campus. The options we provide within the Department of Biological Sciences are as follows:

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

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, 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 and 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. 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 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 important 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 and/or laboratory 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.

    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 continue the development of the biotechnology/bioinformatics laboratory that is state of the art and will allow faculty and students in the Department to be active in scholarship involving DNA sequencing.

To obtain a tenure-track position for a grassland plant ecologist. This is important for the Department's participation in the Bioscience Initiative and for the future development of the department.

To develop an Environmental Health Science major.

To further develop the Ecosystem Analysis Laboratory.

To develop an undergraduate seminar series.

To initiate research activities at the Nature Conservancy's Smoky Valley Ranch preserve.

To develop partnerships with governmental and commercial entities that will provide our students with opportunities for research and summer employment.

II. Departmental Highlights

A. Departmental Productivity and Other Distinctive Departmental Accomplishments

- Undergraduate student Ms. Stacey Michaelis received a $4,000 Grant and a $3000 Scholarship from KINBRE.

- Dr. Eric Gillock received the $10,000 Faculty Scholar Award from KINBRE.

- Dr. Greg Farley has an on going long-term research at an on campus bird-banding site; the project is in the 38th year documenting population trends of long and short-distance migratory songbirds.

- Dr. Greg Farley gave a presentation on Evolution and Intelligent Design at American Democracy Project as well as on local radio show.

- Mr. Matt Sexson received the Student Paper Award from the Kansas Ornithological Society annual meeting.

- Mr. A. J. Thomas received the first place Graduate Student Poster Award at the Sigma Xi Science Showcase, FHSU.

- Mr. Cody W. Thompson received the second place Graduate Student Poster Award at the Sigma Xi Science Showcase, FHSU.

- Mr. Matt Sexson received the third place Graduate Student Poster Award at the Sigma Xi Science Showcase, FHSU.

- Mr. Kyle Tutak received the First place Undergraduate Student Poster Award at the Sigma Xi, Science Showcase, FHSU

- Dr. Greg Farley was a Pilot Award nominee.

- Dr. Jerry Choate was designated the President's Distinguished Scholar for 2005-2006

- Dr. Jerry Choate served the American Society of Mammalogists as a member of Board of Trustees, member of Standing Committee on Development, member of Systematic Collections Committee, member of *ad hoc* Committee on Committees, and member of ASM Coordinating Committee)

- Dr. Jerry Choate served the Central Plains Society of Mammalogists as a member of the Threatened and Endangered Species Mammal Subcommittee for Kansas, Archivist, and chair of *ad hoc* Financial Oversight Committee)

- Dr. Jerry Choate was the designated representative of FHSU to the Natural Science Collections Alliance.

- Dr. Jerry Choate served the Southwestern Association of Naturalists as chair of Board of Trustees, member of Board of Governors, and member of Long Range Planning Committee.

- Dr. Jerry Choate participated in planning for the new Kansas Wetlands Education Center.

- Mr. Mark Eberle was nominated as “Top Professor for 2006” by Mortar Board member (senior student).

- Mr. Mark Eberle hosted and moderated oral presentations at the annual meeting of the Kansas Chapter of the American Fisheries Society, 10-11 February 2006.

- Mr. Mark Eberle was Managing Editor, *Southwestern Naturalist*, Southwestern Association of Naturalists, 2002-2006.

- Mr. Mark Eberle was elected as President-elect of the Kansas Chapter of the American Fisheries Society, 2005-2006.

- Dr. Rob Channell serves as Chair of the Research Environment Committee and organized the Research and Creative Activities Week.

- Dr. Rob Channell was elected to Phi Kappa Phi.

- Dr. Rob Channell served as President of the Central Plains Society of Mammalogists.

- Dr. Rob Channell served as Chair of the Conservation Committee for the Southwestern Association of Naturalists.

- Dr. Rob Channell served as Director of Resources of for the International Biogeographer's Society.

- Dr. Joe Thomasson received the 2005-2006 CHLS Scholarship Award

- A fossil grass was named *Thomassonites sinuatum*in Science, Nov. 2005, in honor of Dr. Joe Thomasson for his accomplishments in research on fossil grasses.

- Dr. Rich Packauskas served as treasurer for the International Heteropterist's Society.

- Dr. Rich Packauskas served as AAUP member-at-large (Executive Committee).

- Ms. Shannan K Nilz received the Best MS Student Paper Award at the Central Plains Society of Mammalogist meeting.

- Mr. Cody Thompson received the Research in Mammalogy Award from the Central Plains Society of Mammalogists.

- Ms. Amy Zavala received the Best MS Student Paper award at the Kansas Chapter of The Wildlife Society meeting.

- Dr. Elmer J. Finck received the FHSU research award spring 2006.

- Dr. Elmer J. Finck served the American Society of Mammalogists as a member of Board of Trustees, Business Manager of the Mammal Images Library, member of the Education and Graduate Student Committee on Development, member of Systematic Collections Committee, member of *ad hoc* Committee on Committees, and member of ASM Coordinating Committee).

- Elmer J. Finck served as the editor for The Prairie Naturalist.

- Dr. Elmer J. Finck and Dr. Jerry Choate assisted with the ecoregional planning for The Nature Conservancy.

B. Performance Indicators

Key Performance Indicator	**Baseline FY2005**	**Actual FY2006**	**Goal FY2007**
Number of New Freshmen	41	33	36
Number of Transfer Students	18	14	15
Number of Majors			
Undergraduate (first majors/second majors)	174/4	166/3	182/4
Graduate			
Departmental majors	23	22	24
MLS students	0	0	0
Student Credit Hour Production			
Undergraduate	6183	6292	6354
Graduate	369	310	341
FTE Faculty (Headcount)			
Tenured or Tenure Track Faculty (Headcount)	11	11	12
Non Tenure Track Faculty (Headcount)	1	1	2

Other Faculty (Headcount/Sections Taught)	3/6	2/15	2/22
Degrees Awarded			
Undergraduate	26	27	29
Graduate	10	6	8
Departmental degrees	36	33	37
MLS degrees	0	0	0
Scholarly Activity (See Section IV for documentation requirement)			
Number of books, book chapters, and **refereed** articles published	11	12	13
Percent of faculty publishing **refereed** books, chapters, or articles	58.3	66.7	70
Number of **non-refereed** articles and presentations	54	65	70
Percent of faculty publishing **non-refereed** articles or presentations	91.7	100.0	100.0
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	22/58.3	23/67.7	25/75
Total number of funded external grants / percent of faculty funded	22/ $392,352/ 58.3	24/ $355,715/ 58.3	25/ $402793/ 66.7
Service Activity			

Percent of faculty meeting acceptable standard of service activity	8.3	33.3	10.0
Percent of faculty meeting exceptional standard of service activity	91.7	66.7	90.0
Assurance of Student Learning			
Outcome/Indicator 1 Number of students presentations	30	48	52
Outcome/Indicator 2 Number of undergraduates involved in research	10	12	14
Other Departmental Key Performance Indicators (up to 3 additional measures, optional)			
Outcome/Indicator 1 Number of faculty actively involved with professional organizations	9	9	10
Outcome/Indicator 2 Number of students attending professional meetings	36	81	90
Outcome/Indicator 3 Number of invited faculty seminars	5	3	4

C. Current Quality Initiatives and Results

FY 2006 Quality Initiatives	**Results**
Development of ideas for the Cadaver lab	Not completed
Development of instruments for soils Research	Completed and lab established by action plan
Development of Grassland Plant Ecologist position	Not completed, have developed a new strategy
Development of proposal for participation in the Bioscience Initiative	Not completed

FY 2007 Quality Initiatives	Responsible Party, Resources, and Plan
Development of an Environmental Health Science Degree	Dr. Bill Stark and Dr. Greg Farley, $40,000, a plan has been developed
Development of research effort with The Nature Conservancy for Smoky Valley Ranch	Dr. Elmer J. Finck, $19,000, a plan has been developed and is being considered by The Nature Conservancy
Development of a cooperative effort between the Department of Biological Sciences and Barton County Community College relative to the Cheyenne Bottoms Visitor Center	Dr. Elmer J. Finck, resources are still unknown, plan is developing

III. Strategic Plan and Opportunities for Improvement for FY2006

A. Departmental Reflection of Strengths, Weaknesses, Opportunities, and Threats

Strengths	Weaknesses/Needs
• Overall strong, supportive collaborative environment with good cooperation among faculty, teamwork (sharing equipment, conduct of joint projects, etc), and congenial atmosphere • Broad range of expertise interests among the faculty and graduate students • Faculty are encouraged to conduct research in their areas of expertise • The majority of the faculty succeed in completing such research • State of the art equipment and other resources are available for the conduct of research • The Department has a strong focus on the success of undergraduates by encouraging them to participate in	• We are missing essential areas of expertise central to our regional mission (the Grassland Plant Ecologist and the Secondary Education Specialist) • Retention of majors with the high standards needed to complete a degree in biology • The weakest area of department presently is physiology

research projects • Maintenance of teaching standards • Demonstrate continual quality improvement by faculty who are willing to critically evaluate their performance • National reputation for excellence of our graduate program, regarded by many as one of the best "feeder" to PhD programs • Breadth and strength of our undergraduate curriculum • Success of our graduates in obtaining positions in professional schools and graduate programs • Availability of the resources of the Sternberg Museum of Natural History for teaching, research, and graduate education • Opportunity for curatorial experience at Sternberg Museum of Natural History for both undergraduate and graduate students • Leadership provided by faculty in professional organizations • Our modern state of the art facilities including excellent computer resources impress students and their families, and visitors, assisting with recruitment • The personal attention we give our students in the classroom, advising, and helping to locate employment opportunities	

Opportunities	Threats
• Cheyenne Bottoms Visitor Center • Secondary Education Specialist Position • Interdisciplinary degree – BA or BS in Environmental Science • Recruitment of minority groups in western Kansas	• Loss of faculty positions • Changing demographics of the region – fewer high school graduates • Variation in academic expectations among departments on campus, rigorous standards (such as Biology) further develop proposal at a disadvantage in recruiting and retaining majors

B. Opportunities for Improvement

We are developing interactions with The Nature Conservancy and Kansas Department of Wildlife and Parks for research opportunities for students and faculty.

Short Term OFI	Resources Required	Expected Outcome and Completion Date
The Nature Conservancy	GRA and Grassland Ecologist	Expect to work with TNC on the Smokey Valley Ranch. May 2007
Kansas Department of Wildlife and Parks	OOE for travel, GRA and Grassland Ecologist	Working to develop State Wildlife Grants. Ongoing

We are presently developing six strategic initiatives 1) to renovate the cadaver lab, which we expect will come from FHSU monies, 2) to work with Colorado State University and Kansas State University to develop the National Ecological Observatory Network (NEON) for the central Great Plains, 3) to become part of the Bioscience Initiative, 4) to develop of a monitoring program for species in the western third of Kansas in conjunction with the Kansas Department of Wildlife and Parks (KDWP), 5) to develop a program with the KDWP to develop wildlife biologists among the Latino community, and 6) to develop a Minority Science Education Project.

Long Term Strategic Initiatives	Resources Required	Expected Outcome
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.
NEON	Grassland Plant Ecologist	Become part of the national network doing ecological studies
Bioscience Initiative	$50, 000,000, new faculty positions in proteomics and environmental physiology	To become part of the Bioscience initiative within the state of Kansas
KDWP Long term Monitoring Network for the mixed-grass and short grass prairie	$500,000 annually, faculty position in bioinformatics	Assist the KDWP with the development of monitoring of species across the region for the development of our graduate and undergraduate students
Minority Science Education Project	New faculty position that specializes in secondary education and/or middle school	Increase recruitment, retention and development of minority students in science
Recruitment of members of the Latino Community into the field of wildlife biology	No new resources required	Hope to involve the Latino Community in Natural Resource Decisions. December 2010

IV. Supporting Materials

A. Department Degree Program Affinity Diagram(s)

Traits of a Biology Major	***Expected Learning Outcomes***	***Curriculum***	***Assessment Approach and Methods***
Biology majors are: • Knowledgeable 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. • Analytical 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. • Flexible/Adaptive 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. • Articulate They have the ability to	❖GOAL❖ 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. ❖GOAL❖ 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. ❖GOAL❖ To apply knowledge of the sciences that are ancillary to biology: the learner will be able to (1), apply chemistry to biological	Core Curriculum Develops Basic Knowledge of Biology Tier 1 Core BIOL 222/222L Principles of Biology/Lab BIOL 130/130L Introductory Botany/Lab BIOL 150/150L Introductory Zoology/Lab BIOL 625/625L Genetics/Lab Core Cognates Develop Foundation Knowledge and Perspective Tier 1 Core Cognates CHEM 120/120L University Chemistry I/Lab CHEM 122/122L University Chemistry II/Lab MATH 331 Calculus Methods Courses Develop/Implement Skills of Biological Practitioner Tier 1 Core Cognate MATH 331 Calculus Methods Tier 2 Course BIOL 520 Biometry Develop Depth and Breadth of Biology Knowledge Tier 2 Courses (All majors to have at least 4 of the following courses) BIOL 520 Biometry BIOL 524/524L Cellular Biology/Lab BIOL 622/622L Ecology/Lab BIOL 523 Evolution BIOL 533/533L General Microbiology/Lab *Anatomy: (only one of following will count towards tier*	• Triennial survey of selected alumni • Triennial survey of selected employers of recent graduates • Annual self study of faculty • Annual success rate on PPST for secondary education· • Annual success rate on ASCP certification for medical technologists· • Annual success rate in placement rate of students in graduate programs • Annual success rate in placement of graduates in employment

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
express themselves in biologically correct and effective oratory and written discourse. • Insightful/Humane 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. • Creative They value the role of the creative imagination of past and future scientists in providing the body of evidence for scientific understanding and processes of the acquisition thereof. • Collegial They are assertive, cooperative, and supportive of their colleagues.	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. ❖GOAL❖ 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.	*two requirement)* BIOL 351/351L Comparative Anatomy/Lab BIOL 345/345L Human Anatomy/Lab BIOL 331/331L Plant Anatomy/Lab *Physiology: (only one of following will count towards tier two requirement)* BIOL 346/346L Human Physiology/Lab BIOL 534/534L Plant Physiology/Lab Biodiversity/Conservation Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 523 Evolution BIOL 622/622L Ecology/Lab *One additional Tier 2 Course* Tier 3 Courses: BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 567 Biodiversity and Conservation Biology BIOL 599 Wildlife Management *Animal Taxonomy Electives (3 from following):* BIOL 527/527L Ichthyology/Lab BIOL 543/543L Entomology/Lab BIOL 550/550L Ornithology/Lab BIOL 551/551L Mammalogy/Lab BIOL 560/560L Herpetology/Lab *Biology Electives (2 from following):* BIOL 507 Topics in Biology: Behavioral Ecology BIOL 531 Range Management BIOL 536 Ecological and Range Techniques BIOL 569 Landscape Ecology BIOL 619/619L Aquatic Biology/Lab *Related Sciences* Tier 3 Cognates: CHEM 304/304L Essentials of Organic Chemistry/Lab *Cognate Electives (1 course from following)* GSCI 240 Introduction to Geographic Information Systems GSCI 200/200L Physical Geology/Lab GSCI 340 Environmental Geology AGRI 215/215L Soils/Lab Bio/Medical Laboratory Option	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		Biology Subjects Develop Depth and Breadth of Knowledge Tier 2 Courses: BIOL 345/345L Human Anatomy/Lab BIOL 346/346L Human Physiology/Lab BIOL 520 Biometry BIOL 524/524L Cellular Biology/Lab Tier 3 Courses: BIOL 533/533L General Microbiology/Lab BIOL 648/648L Immunology/Lab *2 additional courses from following:* BIOL 506 Scanning Electron Microscopy - Theory and Operation BIOL 542/542L Parasitology/Lab BIOL 544/544L Embryology/Lab BIOL 545/BIOL 507 Histology/Lab *Related Sciences* Tier 3 Cognates: PHYS 111/111L Physics I/Lab CHEM 304/304L Essentials of Organic Chemistry /Lab CHEM 360/360L Essentials of Biochemistry/Lab Botany Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 331/331L Plant Anatomy/Lab BIOL 520 Biometry BIOL 534/534L Plant Physiology/Lab BIOL 622/622L Ecology/Lab Tier 3 Courses: BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 529 Agrostology BIOL 532 Dendrology BIOL 543/543L Entomology/Lab *Biology Electives (3 from following):* BIOL 506 Scanning Electron Microscopy - Theory and Operation BIOL 523 Evolution BIOL 524/524L Cellular Biology/Lab BIOL 531 Range Management BIOL 536 Ecological and Range Techniques BIOL 540 Principles of Systematic Biology BIOL 567 Biodiversity and Conservation Biology BIOL 569 Landscape Ecology BIOL 619/619L Aquatic Biology/Lab	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		Related Sciences Tier 3 Cognates: AGRI 215/215L Soils/Lab CHEM 304/304L Essentials of Organic Chemistry/Lab *Cognate Electives (1 course from following):* GSCI 200/200L Physical Geology/Lab GSCI 340 Environmental Geology/GSCI 102 Introduction to Geology Lab Environmental Biology Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 533/533L General Microbiology/Lab BIOL 622/622L Ecology/Lab *One additional Tier 2 course required* Tier 3 Courses: BIOL 221 Humans and the Environment BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 556/556L Limnology/Lab BIOL 567 Biodiversity and Conservation Biology BIOL 569 Landscape Ecology BIOL 619/619L Aquatic Biology/Lab *Related Sciences* Tier 3 Cognates AGRI 215/215L Soils/Lab CHEM 250/250L Chemical Analysis /Lab CHEM 304/304L Essentials of Organic Chemistry/Lab GSCI 240 Introduction to Geographic Information Systems GSCI 435 Hydrology and Water Resources Fishery Biology Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 622/622L Ecology/Lab T*wo additional Tier 2 courses required* Tier 3 Courses: BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 527/527L Ichthyology/Lab	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		BIOL 556/556L Limnology/Lab BIOL 567 Biodiversity and Conservation Biology BIOL 619/619L Aquatic Biology/Lab BIOL 655 Fisheries Management *Related Sciences* Tier 3 Cognates: CHEM 304/304L Essentials of Organic Chemistry/Lab GSCI 240 Intro to Geographic Information Systems (GIS) GSCI 435 Hydrology & Water Resources Medical Technology Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 346/346L Human Physiology/Lab BIOL 533/533L General Microbiology/Lab *Two additional Tier 2 courses required* Tier 3 Courses: BIOL 542/542L Parasitology/Lab *One additional from the following:* BIOL 507 Topics in Biology: Principles of Immunology BIOL 648 Immunology *Related Sciences* Tier 3 Cognates: PHYS 102/103 Physical Science/Lab (recommended) *One from the following*: CHEM 304/304L Essentials of Organic Chemistry/Lab CHEM 340/340L Organic Chemistry I/Lab *One from the following:* CHEM 250/250L Chemical Analysis/Lab CHEM 342/342L Organic ChemistryII/Lab CHEM 360/360L Essentials of Biochemistry/Lab Rangeland Conservation Specialist Option *Biology -Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 622/622L Ecology/Lab BIOL 534/534L Plant Physiology/Lab	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		One additional Tier 2 Course required Tier 3 Courses: BIOL 507 Topics in Biology: Field Study of Range Plants BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 531 Range Management BIOL 535 Range Planning BIOL 536 Ecological and Range Techniques BIOL 537 Range Condition & Improvement BIOL 538 Range Plants BIOL 567 Biodiversity and Conservation Biology BIOL 599 Wildlife Management *Related Sciences* Tier 3 Cognates CHEM 112/112L General Chemistry I/Lab CHEM 114/114L General Chemistry II/Lab AGRI 213 Pasture and Forage Crops AGRI 215/215L Soils/Lab GSCI 340 Environmental Geology AGRI 510/510L Beef Cattle Production/Lab AGRI 525 Soil and Water Management AGRI 531/531L Development and Classification of Soils/Lab Secondary Teaching Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 523 Evolution BIOL 533/533L General Microbiology/Lab BIOL 622/622L Ecology/Lab Tier 3 Courses: BIOL 230 Human Anatomy and Physiology BIOL 232 Anatomy of Humans Laboratory BIOL 234 Physiology of Humans Laboratory BIOL 476 Apprenticeship in Biology *Professional Education Develops Teacher Preparation* COED 202 Foundations of Education BIOL 277 Early Field Experience TEEL 431 Educational Psychology TESS 494 The Secondary School Experience TESS 496 Directed Teaching (Secondary) BIOL 508 Teaching Methods in Biology	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		SPED 601 Educating Exceptional Students *Applications Develop Requisite Skills* PHYS 111/lllL Physics I Wildlife Biology Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 622/622L Ecology/Lab *Two additional Tier 2 courses* Tier 3 Courses: BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 531 Range Management BIOL 550/550L Ornithology/Lab BIOL 551/551L Mammalogy/Lab BIOL 567 Biodiversity and Conservation Biology BIOL 599 Wildlife Management *Related Sciences* Tier 3 Cognates: AGRI 215/215L Soils/Lab GSCI 200/200L Physical Geology/Lab GSCI 240 Introduction to Geographic Information Systems (GIS) Zoology Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 520 Biometry BIOL 622/622L Ecology/Lab *Two additional Tier 2 courses* Tier 3 Courses: BIOL 510/510L Taxonomy of Flowering Plants/Lab BIOL 527/527L Ichthyology/Lab BIOL 543/543L Entomology/Lab BIOL 550/550L Ornithology/Lab BIOL 551/551L Mammalogy/Lab BIOL 560/560L Herpetology BIOL 567 Biodiversity and Conservation Biology *Two from the following:* BIOL 507 Topics in Biology: Behavioral Ecology	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		BIOL 523 Evolution BIOL 540 Principles of Systematic Biology BIOL 569 Landscape Ecology BIOL 599 Wildlife Management *Related Sciences* Tier 3 Cognates: CHEM 304/304L Essentials of Organic Chemistry/Lab *One elective from following:* GSCI 200/200L Physical Geology/Lab GSCI 240 Introduction to Geographic Information Systems (GIS) GSCI 340 Environmental Geology Pre-Physical Therapy Option *Biology Subjects Develop Depth and Breadth of Knowledge* Tier 2 Courses: BIOL 345/345L Human Anatomy/Lab BIOL 346/346L Human Physiology/Lab BIOL 524/524L Cellular Biology/Lab *One additional Tier 2 course* Tier 3 Courses: BIOL 241 Microbiology for Allied Health BIOL 322 Human Heredity *Related Sciences* Tier 3 Cognates PHYS 111/111L Physics I/Lab PHYS 112/112L Physics II/Lab *Skills* MATH 122 Plane Trigonometry HHP 220 Standard First Aid MATH 250 Elements of Statistics Pre-Forestry Option *Biology Subjects Develop Depth and Breadth of Knowledge* BIOL 510/510LTaxonomy of Flowering Plants/Lab BIOL 532 Dendrology *Related Sciences* PHYS 111/111L Physics I/Lab GSCI 200/200L Physical Geology/Lab AGRI 215/215L Soils/Lab *Skills* AGRI 220 Agricultural Accounting	

Traits of a Biology Major	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods
		MATH 234 Analytic Geometry & Calculus MATH 250 Elements of Statistics Pre-Health Information Management Option *Biology Subjects Develop Depth and Breadth of Knowledge* BIOL 263 Medical Terminology BIOL 345/345L Human Anatomy/Lab BIOL 346/346L Human Physiology/Lab *Skills* ACCT 203 Financial Accounting ENG 246 Technical and Report Writing	

B. Department Staffing Plan

(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	Assistant Professor (2004)	PhD	Tenured Track	2004
118111-017	Conservation Biology/GIS	Channell, Robert B.	Conservation Biology Biogeography GIS Statistics Landscape Ecology	1.0	Assistant Professor (1999)	PhD	Tenure Track	1999
118111-013	Mammalian Systematics	Choate, Jerry R.	Mammalian Systematics	0.0	Professor (1980)	PhD	Tenured	1971
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	Associate Professor (2001)	PhD	Tenured	1995
118111-001	Administration Wildlife Biology	Finck, Elmer J.	Administration Wildlife Biology	0.5	Professor (2001)	PhD	Tenured	2001
118111-018	Microbiology	Gillock, Eric T.	Microbiology Virology Molecular Biology	1.0	Assistant Professor (2001)	PhD	Tenured Tract	
118111-002	Ecology	vacant	Plant Ecology Secondary	1.0	Assistant Professor	PhD	Tenured Tract	
118111-007	Human Anatomy Physiology	Morgan, Mary L.	Human Physiology	0.6	Professor (1985)	PhD	Tenured	1981
118111-006	Rangeland Management	Nicholson, Robert A.	Rangeland Management	1.0	Professor (1985)	PhD	Tenured	1973
118111-015	Entomology	Packauskas, Richard J.	Entomology Zoology Aquatic Biology	1.0	Associate Professor (2001)	PhD	Tenured	1995
118111-008	Ichthyology	Stark, William J.	Ichthyology Stream Ecology Fisheries	1.0	Associate Professor (2001)	PhD	Tenured	1995

			Management					
118111-014	Microbial Ecology	Strauss, Eric A.	Microbial Ecology Limnology Ecosystems Ecology	1.0	Assistant Professor (2005)	PhD	Tenured Track	2005
118111-005	Botany	Thomasson, Joseph R	Botany Paleobotany Aquatic Biology	1.0	Professor (1987)	PhD	Tenured	1982
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

Benedict, R. A., H. H. Genoways, and J. R. Choate. 2006. Taxonomy of short-tailed shrews (genus Blarina) in Florida. Occasional Papers, Museum of Texas Tech University, 251:1-19.

Bennett, S. C. [Combined book review of] "Posture, locomotion and Paleoecology of Pterosaurs" by S. Chatterjee and R. J. Tamplin and "Evolution and paleobiology of Pterosaurs" edited by E. Buffetaut and J. -M. Mazin. Journal of Paleontology 79:625-627.

Choate, J. R. 2005. When People ask what I do, I say I study bats and rats. Pp. 129-139, *in* Going Afield (C. J. Phillips and C. Jones, eds.). Museum of Texas Tech Univeresity, Lubbock, iii+289 pp.

Eberle, M.E., and R.B. Channell. 2006. Homogenization of fish faunas in two categories of streams in a single basin in Kansas and the choice of similarity coefficients. Transactions of the Kansas Academy of Science 109:41-46.

Liggett, G. A., K. Shimad, S. C. Bennett, and B. A. Schumacher. Cennomanian (Late Cretaceous reptiles from northwestern Russel County Kansas. PaleoBios 25:9-17

Marquardt, S. R., J. R. Choate, and S. D. Roth, Jr. 2005. Continued range expansion by the cave myotis. Prairie Naturalist 37:51-52.

Packauskas, R. J. Aug. 4, 2005. Hudsonian Emerald Dragonfly (Somatochlora hudsonica): A Technical Conservation Assessment (http://www.fs.fed.us/r2/projects/scp/assessments/hudsonianemeralddragonfly.pdf)

Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project. 39 pages.

Pitts, R. M., J. R. Choate, and N. A. Hernandez. 2005. Reproduction of the plains pocket gopher (Geomys bursarius) and Baird's pocket gopher (G. breviceps) in Texas. Southwestern Naturalist 50:393-397.

Post, D. M., M. V. Snyder, E. J. Finck, and D, K. Saunders. (In Press). Caching as a strategy for surviving periods of resource scarcity; a comparative study of two species of Neotoma. Functional Ecology.

Schmidt, C. D., and K. R. Hickman. 2006. Stolon production by Caucasian bluestem (Bothriochloa bladhii). Transactions of the Kansas Academy of Science 109:74-76.

Snyder, M. V., D. M. Post, and E. J. Finck. 2005. The use of total body electrical conductivity (TOBEC) to predict lean and lipid mass in woodrats. Wildlife Society Bulletin 33:1009-1017.

Thomasson, J. R., S. A. Thomasson, and D. E. Mergen. 2006. First record of Calochortus apiculatus (Liliaceae) in Wyoming. Western North American Naturalist 66:252-254.

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

Mission

The Department provides opportunities for students 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.

E. Special AQIP Report

Department/Unit _____Biological Sciences_____

Chair/Director _____Dr. Elmer J. Finck_____

Date Submitted _____June 30, 2006_____

Total Faculty FTE for the Department ____12.6_____

OPERATIONAL DEFINITION OF DATA REQUIREMENT	FY20065 RESULTS
NUMBER OF SABBATICALS GRANTED	0
NUMBER OF REASSIGNED TIME APPLICATIONS	0
NUMBER OF REASSIGNED TIME REQUESTS GRANTED	0
NUMBER OF REFERRED PUBLICATIONS BY FACULTY	12
NUMBER OF NON-REFERRED PUBLICATIONS BY FACULTY	4
NUMBER OF OTHER CREATIVE ACTIVITIES (EXHIBITIONS, PERFORMANCES, ETC.) BY FACULTY	65
TOTAL OF PUBLICATIONS (REFERRED AND NON-REFERRED, CREATIVE ACTIVITIES ETC.) AS A RESULT OF EXTERNAL FUNDING	60
TOTAL OOE FUNDS DISTRIBUTED FOR PURPOSES OF ACADEMICALLY-INSPIRED TRAVEL (CONFERENCE ATTENDANCE, SCHOLARLY PRESENTATIONS, ETC.)	$9,169.08