

FY2006 DEPARTMENTAL ANNUAL REPORT OF CONTINUOUS IMPROVEMENT

Department of Geosciences Fort Hays State University

I. Departmental Overview

The Department of Geosciences offers baccalaureate degrees and minors in both geology and geography and a master's degree in geosciences, focusing on either geology or geography. Study and training in the geosciences are designed to provide: (1) students with an understanding of the methods of science and the fundamentals of geoscience as they relate to the physical and cultural environments of humans and their dependence upon earth resources; (2) science students with the fundamental of geology as a foundation for other science studies; (3) an understanding of the relationships between humans and their environment, plus training in sophisticated methods of spatial mapping and analysis, like remote sensing and geographic information systems; (4) training in geology, earth and space sciences, and geography as areas of specialization for elementary and secondary school teachers; (5) professional degrees for employment or future graduate study; and (6) graduate degrees for the professional geologist or geographer.

A. Departmental Mission and Vision Statements

The Geosciences Department includes the fields of geography and geology. It is a part of the arts and sciences school of Fort Hays State University, a regional university principally serving western Kansas, which is dedicated to providing instruction within a computerized environment. As an integral part of Fort Hays State University, the mission of the Department of Geosciences is to meet the needs of the region and beyond by producing and distributing high-quality tailored information about physical, paleontological, and human patterns and processes, past and present, on and in the Earth.

B. Departmental Goals, Objectives, and Strategic Priorities

The goals, objective, and strategic priorities for department disciplines of geology and geography are distinctive at the Bachelors level and at the Masters level. Each will be included separately.

B.S. Geology:

The BS geology program is divided into two parts, the core curriculum and the certificate areas. Within the core curriculum students obtain basic knowledge and skills by mastering topics associated with introductory courses in calculus, chemistry and physics.

This knowledge of cognate disciplines prepares the student to master the foundation knowledge in geology, including physical and historical geology, mineralogy, petrology and structural geology. Needed skills are obtained via laboratory experiences associated with physical and historical geology.

Specifically the objectives of the core curriculum include the following:

- (1) Students will master the basic principles of geology, including physical, historical, mineralogy, petrology and structural.
- (2) Students will demonstrate computer literacy in geology
- (3) Students will demonstrate written and oral literacy in the major areas of geology.
- (4) Students will demonstrate mastery of knowledge and basic skills in chemistry, physics, and mathematics.
- (5) Students will demonstrate mastery of the scientific method through laboratory experience.

After mastering the core curriculum, students complete a curriculum in one of the certificate areas of traditional, paleontology, environmental or technology. Completion of a certificate in paleontology adds additional courses in biology, the environmental focus adds hydrology, and the technology focus adds courses in Computer applications, and Geographic Information Systems.

Specifically the objectives of the certificate areas include the following:

- (1) Traditional Certificate Objectives: Students will demonstrate additional knowledge and skills in paleontology, statistics, and physics or biology.
- (2) Paleontology Certificate Objectives: Students will demonstrate additional knowledge and skills focusing on paleontology, biology, and biometrics.
- (3) Environmental Certificate Objectives: Students will demonstrate additional knowledge and skills focusing on geomorphology, hydrology, and statistics.
- (4) Technology Certificate Objectives: Students will demonstrate basic knowledge and skills focusing on computer literacy, Geographic Information Science, and statistics.

B.S. Geography:

The BS geography program is divided into a core curriculum and a series of three tracks; the information systems track, the environmental resources track, and the human-urban-social track. The Geography/GIS curriculum is organized as a tree, with geographic concepts serving as the root node or foundation of the tree. Above this is the main branch or trunk of the tree which comprises all phases of processing spatially referenced data, including data acquisition (remote sensing, global positioning systems, and field work), data analysis (vector-raster based representational media, photogrammetry, spatial statistics), and data interpretation. The Geography/GIS tree includes three major tracks (sub branches) focusing on applications: the information systems branch, resource and environmental studies branch, and the human, social and urban studies branch. Each of these sub-branches contains a variety of courses, smaller branches, from which students may sample. The individual courses are the leaf nodes of the curriculum.

Specifically the objectives of the core curriculum include the following:

- (1) Students will possess the necessary tools and techniques to think geographically.
- (2) Students will use critical thinking skills to interpret the present and plan for the future.
- (3) Students will see the global and regional view, including the political, social, and economic context of which they are a part.
- (4) Students are knowledgeable about current theories, skills and approaches to spatial problems and understand the need for continuous improvement and the imperatives of change.
- (5) Students will understand the role of geographic knowledge in the relationship between leaders and followers.

M.S. Geosciences:

The Masters level program, because it is a research-oriented degree here at Fort Hays, is less structured than our bachelor's programs. Students in consultation with their major advisor select the courses, which will provide the needed knowledge to complete the thesis, the capstone assessment of their Master's program. In addition to the thesis, the department also requires a course in scientific writing to develop the skills necessary for the writing of the thesis.

Specifically the goals and objectives include the following:

- (1) Students are knowledgeable and are able to gather and interpret data about the Earth.
- (2) Students are analytical and express themselves in effective oral and written discourse
- (3) Students are multi-talented and are competent in many of the sub-disciplines of Geology.
- (4) Students are articulate, have excellent communication skills (verbal, written), and are computer literate.
- (5) Students are collegial and are assertive, cooperative, and supportive of their colleagues.
- (6) Students are adaptable and able to change careers in "mid-stream" if needed.

II. Departmental Highlights

A. Departmental Productivity and Other Distinctive Departmental Accomplishments

In FY 2006, the Department of Geosciences awarded more bachelor’s degrees than in any of the previous six years. This success is the cumulative result of innovative and effective recruitment, programming, course design and instructional technique, and staff support. Besides its own degree programs, the department has been outstanding in providing service courses for the Virtual College and the general education component of the FHSU curriculum. The year also saw the department leap into a new era of technology, as it was a pilot department for the Mobile Computing Initiative. We made excellent use of the opportunity, both for learning lessons which can be shared with other departments and for developing innovative pedagogical techniques specially suited for the geosciences.

The Geosciences faculty has focused upon research and service activities that have provided our students with the opportunity to earn money by working on real world projects that will also benefit society. In so doing they have also given visibility to the department and Fort Hays State University at the local, regional and state level. Departmental members are active members of the Ellis County Wellhead Protection Committee, the Ellis County Regional GIS organization (ERGO), the North-Central Kansas Economic Development Commission, the Mid-America GIS Consortium, the state GIS Advisory Board, and the state Association of Mappers. The visibility generated by our leadership in these organizations has brought grants from the Kansas Department of Transportation, The Kansas Geological Survey, and the University of Nebraska. Departmental faculty are also heavily involved at the National Aeronautics and Space Administration (NASA), including membership in science working groups and proposal review panels. The visibility generated by this NASA connection has brought grants to the Department. Finally, the faculty have continued to provide leadership for many University committees and the Faculty Senate.

B. Performance Indicators

| Key Performance Indicator | Baseline FY2004 | Actual FY2005 | Actual FY2006 | Goal FY2007 |
|---|----------------------------|--------------------------|--------------------------|------------------------|
| Number of New Freshmen | 6 | 3 | 4 | 6 |
| Number of Transfer Students | 9 | 1 | 1 | 5 |
| Number of Majors: | 95 | 75 | 69 | 82 |
| Undergraduate (first majors/second majors) | 72 | 60 | 54 | 65 |
| Graduate | 13 | 15 | 15 | 17 |
| Departmental majors | 12 | 13 | 13 | 14 |
| MLS students | 1 | 2 | 2 | 3 |

| Key Performance Indicator | Baseline FY2004 | Actual FY2005 | Actual FY2006 | Goal FY2007 |
|--|----------------------------|--------------------------|--------------------------|------------------------|
| Student Credit Hour Production | 5981 | 5906 | 5738 | 5600 |
| Undergraduate | 5797 | 5731 | 5554 | 5415 |
| Graduate | 184 | 175 | 184 | 185 |
| FTE Faculty (Headcount) | | | | |
| Tenured or Tenure-track Faculty (Headcount) | 6.5 | 6.5 | 6.5 | 6.5 |
| NonTenure-Track Faculty (Headcount) | 0 | 0 | 0 | 0 |
| Other Faculty (Headcount/Sections Taught) | 2/5 sections | 2/5 sections | 2/5 sections | 2/5 sections |
| Degrees Awarded | 12 | 12 | 20 | 17 |
| Undergraduate degrees | 11 | 9 | 18 | 12 |
| Graduate degrees | 1 | 3 | 2 | 5 |
| Departmental degrees | 1 | 3 | 2 | 4 |
| MLS degrees | 0 | 0 | 0 | 1 |
| Scholarly Activity (See Section IV for documentation requirement) | | | | |
| Number of books, book chapters, and refereed articles published | | 3 | 5 | 6 |
| Percent of faculty publishing refereed books, chapters, or articles | | 83% | 71% | 83% |
| Number of non-refereed articles and presentations | | 12 | 22 | 25 |
| Percent of faculty | | 83% | 100% | 100% |

| Key Performance Indicator | Baseline FY2004 | Actual FY2005 | Actual FY2006 | Goal FY2007 |
|---|--------------------|---|---|---|
| <p>publishing non-refereed articles or presentations</p> <p>Number of scholarly performances and other creative activities</p> <p>Percent of faculty in scholarly performances or other creative activities</p> <p>Total number of external grant applications submitted/percent of faculty submitting</p> <p>Total number of funded external grants/percent of faculty funded</p> | | <p>28</p> <p>100%</p> <p>9/83%</p> <p>8/94%</p> | <p>0</p> <p>0%</p> <p>14/100%</p> <p>11/83%</p> | <p>0</p> <p>0%</p> <p>12/83%</p> <p>9/83%</p> |
| <p>Service Activity</p> <p>Percent of faculty meeting acceptable standard of service activity</p> <p>Percent of faculty meeting exceptional standard of service activity</p> | | <p>50%</p> <p>50%</p> | <p>43%</p> <p>57%</p> | <p>43%</p> <p>57%</p> |
| <p>Assurance of Student Learning</p> <p>Outcome/Indicator 1</p> <p>Capstone Courses 454 & 695 GSCI 454 Field Studies in Geosciences if geology majors or GSCI 695 Internship in Geography if geography majors.</p> <p>% of students enrolled, meeting standards as identified by supervisor.</p> <p>Outcome/Indicator 2</p> | | <p>99%</p> | <p>100%</p> | <p>100%</p> |

| Key Performance Indicator | Baseline FY2004 | Actual FY2005 | Actual FY2006 | Goal FY2007 |
|---|----------------------------|--------------------------|--------------------------|------------------------|
| % increase between pre and post tests Geography Geology (See Section IV-D) | | 31.4% 163% | 16% 104% | 25% 100% |
| Other Departmental Key Performance Indicators (up to 3 additional measures, optional) Outcome/Indicator 1 Percent of faculty attending an academic meeting in their field | | 100% | 100% | 100% |
| Outcome/Indicator 2 Percent of faculty taking part in fund raising activities such as Tiger Call | | 100% | 100% | 100% |
| Outcome/Indicator 3 % of faculty integrating service learning into their classes. | | 50% | 43% | 57% |

C. Current Quality Initiatives and Results

| FY 2006 Quality Initiatives | Results |
|---|---|
| Quality Initiative 1: The department will focus on AQIP criterion 1, Helping Students Learn. Student exit surveys suggest the need to review our curriculum and course content. The specific AQIP focus will be 1P8 (monitoring the currency and effectiveness of the curriculum). | Efforts towards a curriculum/course content review in FY06 included extensive data collection regarding the topics covered in each of the courses required for our majors and targeted discussion of new opportunities in petroleum geology and traditional geology. This initiative has been transformed and extended into a full academic audit that will be conducted in FY07. |
| Quality Initiative 2: The department will focus on AQIP criterion 1, Helping Students Learn. The AQIP focus will be 1C3, (integrating technology within the formal instructional context). | The primary activity conducted under this initiative in FY06 was the department's participation in the Mobile Computing Initiative. Department faculty were issued tablet computers, and a cart containing tablets for student use was provided to the department. Faculty attended workshops and other training sessions offered by CTELT and the department held periodic |

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|--|--|
| | <p>technology/pedagogy sharing sessions. A number of courses were completely redesigned around the tablet technology and new applications were developed for classroom use. Some of these were spectacularly successful and indicate that the tablet computers will offer significant benefit to many courses. Students and faculty were surveyed regarding the utility and pedagogic benefit of the tablet computers and summarizing the key performance indicators for the project. A detailed report was submitted in May 2006. Other technologies, including the use of Google Earth and the Classroom Performance System (CPS) were examined and evaluated.</p> |
|--|--|

| FY 2007 Quality Initiatives | Responsible Party, Resources, and Plan |
|---|---|
| <p>Quality Initiative 1 - Academic Audit: The department will focus on AQIP criterion 1, Helping Students Learn. Student exit surveys suggest the need to review our curriculum and course content. The specific AQIP focus will be 1P8 (monitoring the currency and effectiveness of the curriculum).</p> | <p>The department will conduct a top-to-bottom review of its curriculum. Two committees will be appointed, one for geology and the other for geography. These committees will use the course content information collected in FY06, survey data collected over the past several years, and information from potential employers to examine the objectives of the department's programs, characteristics of graduates, the sequencing and content of courses, and how effectiveness of the programs is assessed. We anticipate significant curricular changes as a result of the audit. Particular focus will be given to the World Geography course, including an analysis of rigor, consistency, assessment, and delivery methods.</p> |
| <p>Quality Initiative 2 – Mobile learning: The department will focus on AQIP criterion 1, Helping Students Learn. The AQIP focus will be 1C3, (integrating technology within the formal instructional context).</p> | <p>The department will continue to extend the work done in FY06. New sections of some courses (World Geography and Elements of Physical Geography) will be testbeds for the mobile computing technology in a GenEd context. Other courses, notably Introduction to Geology and Physical Geology, will be augmented by the use of the tablet computers and other learning technology. The goal for this initiative is that all of the faculty employ the mobile computing technology in at least one class during FY06.</p> |
| <p>Quality Initiative 3 – Recruitment: The department will focus on AQIP criterion 1, Helping Students Learn. The AQIP focus will be 1C3, (integrating technology within the formal instructional context).</p> | <p>The goal of this initiative is to expand the numbers of high-quality undergraduate geography and geology majors and graduate students. As part of this initiative, strategic partnerships will be formed with high school Geoscience programs focusing on eastern Kansas. In addition, the department website will be updated to promote interest in the geosciences. New approaches will be investigated to use Internet social networking sites for recruitment. Cooperative experiential learning programs will be developed with local high schools. Relationships will be developed with nearby community colleges.</p> |

III. Strategic Plan and Opportunities for Improvement for FY2007

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

The strategic planning process within the Department of Geosciences takes place both formally and informally. On a continuing basis, the chair meets with the department faculty and staff to discuss long-range goals and initiatives. In addition, the department held a half-day planning session in May 2006. In our formal session, the department identified four key mission-oriented goals:

1. Recruitment of quality undergraduate majors in both geology and geography
2. Increase graduation/retention
3. Enhance student career preparation and placement
4. Improve research productivity

We performed a SWOT analysis for each of these goals as included below:

Goal 1: Recruitment

| Strengths | Weaknesses/Needs |
|--|---|
| Strong placement record Low faculty/student ratio (means more personal attention) Broad faculty knowledge State-of-the-art technology for teaching and learning Willingness to innovate Flexible degree programs | Lack of faculty time Limited faculty/staff resources Lack of petroleum geology program Geology perceived as a difficult subject “Converting” juniors and seniors is difficult because of need to fit into sequence Outdated web site Lack of traditional (non-technology) geography degree focus Lack of scholarship funds Limited set of entry-level courses |
| Opportunities | Threats |
| High resource prices Environmental issues growing Strong GIS technician/analyst market Specialized geoscience programs in some high schools Aging workforce in some areas (petroleum geology) Lack of trained seismic interpreters in Kansas Prospective student use of technology | Demographics in western Kansas – declining high school graduate cohort Geoscience courses not in many high schools Low visibility of geoscience careers Fewer academic jobs High cost of education |

Goal 2: Retention/Graduation

| Strengths | Weaknesses/Needs |
|---|--|
| Close contact with advisees Many opportunities for students to work on projects while studying | Classrooms spread across campus – hard to develop proper environment academically and socially |

| | |
|---|---|
| | Insufficient opportunity for social interaction Course sequencing in geography sometimes a challenge Stratification by class |
| Opportunities | Threats |
| Local alumni in petroleum-oriented careers can work with students | Student distractions (jobs, etc.) Quality of incoming students Lack of preparation for rigors of challenging programs Some students uncomfortable with level of technology (vs. subject content) |

Goal 3: Career Preparation/Placement

| | |
|--|---|
| Strengths | Weaknesses/Needs |
| Excellent relationship between geography faculty and prospective employers (also the state GIS board) Variety of GIS software in-house ESRI site license Currency of courses Strong networking between faculty and community | Lack of formal undergraduate research program (for grad school preparation) |
| Opportunities | Threats |
| Strong labor markets in petroleum geology, GIS Creation of new geography career coordinator faculty service role | Poor writing/quantitative skills, require remedial work before graduation |

Goal 4: Research Productivity

| | |
|---|---|
| Strengths | Weaknesses/Needs |
| Mobile computing – enables research to be done anytime, anywhere Strong record of successful grantwriting Strong reputation for quality scholarship | Lack of time <ul style="list-style-type: none"> - immediacy of service - teaching load - adapting to technology Lack of travel funds (particularly out of state and particularly for taking students to appropriate conferences and workshops) |
| Opportunities | Threats |
| Many needs in SW Kansas Geosciences may be well received by Hispanics | Not as much collaboration on grants as desirable Reduced government research support in some geoscience areas |

B. Opportunities for Improvement

The items listed below are only a subset of the strategies that were developed through our planning process. Other major long-term initiatives are described above in II. C.

| Short Term OFI | Resources Required | Expected Outcome and Completion Date |
|--|---|---|
| Develop partnership with Olathe North HS Geoscience program | Scholarship funding Travel funding Faculty time for visits | We would expect to see two or three interested graduates in FY07, with numbers increasing thereafter. |
| Improve website: easier to navigate for prospective students, fresh content/style, detailed and frequently updated career section | Student labor hours for web development and maintenance Faculty time for developing and evaluating new content | The website update will be complete during FY07 A survey will be conducted to determine website effectiveness |
| New advertising/promotion approaches such as tables/displays at FHSU and high school events, advertising on social networking sites used by prospective students, development of internal marketing using the departmental and university websites | Faculty/staff time for developing new recruitment materials OOE funds for producing and purchasing recruitment materials | We would expect to see a small number of additional majors in the fall of 2006, with numbers increasing every semester thereafter |
| Promote more mentoring and tutoring opportunities for students | None | Increased student performance and socialization, resulting in greater recruitment and retention. |
| Review departmental criteria for research merit/tenure | Faculty time to review criteria | New criteria will be in place by the start of FY08 |

| Long Term Strategic Initiatives | Resources Required | Expected Outcome |
|--|---|---|
| Rebalance faculty commitments, particularly between service and research but also in order to provide more time for development and enhancement of courses | An additional faculty member specializing in hydrogeology with expertise in GIS and geomorphology would complement departmental needs and allow a better balance for all faculty in the department. Alternatively, smaller class sizes and a careful look at service commitments are required. | A greater focus on student-centered activities Greater faculty research productivity and more projects for student hands-on learning Improved faculty currency in field Increased and more successful grantwriting |
| Incorporate more consistent writing, arithmetic practice in courses | Faculty time to develop appropriate exercises. Most likely, additional courses will be required to compensate for the class time used for these components | Increased student performance and retention |

IV. Supporting Materials

A. Department Degree Program Affinity Diagram(s)

- B. Department Staffing Plan**
- C. Bibliography of Departmental Scholarly Activity**
- D. Department Program Assessment Results**
- E. Other Departmental Information**
- F. Special AQIP Report**

**A. Department of Geosciences
Affinity Diagram for Bachelor of Science in Geography Degree Program
with a concentration in Geographic Information Systems**

| Characteristics of GIS Specialists | Expected Learning Outcomes | Curriculum | Preliminary Assessment Approach and Methods | Results | Curricular and/or Pedagogical Changes |
|---|--|--|--|---|--|
| <p>Knowledgeable Possess the necessary tools and techniques to think geographically.</p> <p>Problem Solvers Use critical thinking skills to interpret the present and plan for the future.</p> <p>Strategy Minded See the big picture including the political, social, and economic context of which they are a part.</p> <p>Innovative/Adaptive Are knowledgeable about current theories, skills and approaches to spatial problems and understand the need for continuous improvement and the imperatives of change.</p> <p>Leaders Understand the role of geographic knowledge in the relationship between leaders and followers.</p> | <ul style="list-style-type: none"> To see the web of relationships between people, places, and the environment To perceive the world in spatial terms To use maps and other geographic tools and technologies to acquire, process and report information <p>To be able to:</p> <ul style="list-style-type: none"> ask geographic questions acquire geographic information organize geographic information analyze geographic information answer geographic questions look at the world as a whole understand the connections between places recognize that the local affects the global and vice versa understand and utilize knowledge of technology relevant to the practice of geography utilize computers, geographic data processing programs, remote sensing, and | <p><u>A. Program Core Curriculum</u> <i>Develops Knowledge</i> GSCI 101 Physical Geography GSCI 105 Cultural Geography GSCI 321 U. S. Geography or GSCI 500 Kansas Geography <i>Develops Skills</i> GSCI 290 Cartography: Theory and Computer Applications GSCI 240 Intro to GIS GSCI 360 Intermediate GIS GSCI 625 Advanced GIS GSCI 674 Aerial Photographs and Remote Sensing <i>Develops Advanced Skills</i> GSCI 630 Geostatistics GSCI 000 Adv Cartography GSCI 000 GIS Programming <i>Develops Perspective</i> GSCI 104 Orientation in GIS IDS 402 U.S. Human Geog GSCI 551 Field Studies in Geog GSCI 695 Internship in Geog GSCI 685 Research Design in Geography</p> <p><u>B. Cognate Focus Tracks</u> <i>Develops Leadership Qualities</i> IDS 201 Intro to Leadership Concepts IDS 202 Intro to Leadership Behavior (Select one Track and take 15 hrs.) Track 1: Information Systems CIS 303 Computer Operating Systems CIS 502 Information Systems CIS 503 Database Systems CIS 504 Management Information Systems CIS 550 Networks in Data Communications TECS 318 Computer Assisted Drafting</p> | <p>Program</p> <ul style="list-style-type: none"> Five year program review as developed by FHSU College of Arts & Sciences Survey student and employer satisfaction with program and graduates. The results are used to improve the program Collect outcome information relating to program goals Entrance and exit testing of students <p>Students</p> <ul style="list-style-type: none"> Written examinations and completion of laboratory projects in all required courses Capstone course: Internship in Geography to satisfy learning-in-context Formal and informal student needs assessment Transcript analysis | <p>FY06 Entrance/exit testing Four students completed their post-tests in FY06. The average increase in student knowledge between the pre- and post-tests was 16%.</p> <p>Student Needs Assessment An informal needs assessment revealed that students in the upper division courses lack adequate writing and quantitative skills. In addition, sequencing of courses should emphasize continuity of practice.</p> <p>Internship (capstone course) In FY06, 8 students completed GSCI 695 (Internship in Geography). All students successfully completed their assistantships, and their supervisors were very positive</p> | <p>Tentative list pending full academic audit in FY07</p> <ul style="list-style-type: none"> Integrate graded writing and arithmetic problem-solving into all courses where reasonable Develop standard sequence for major courses Update entrance/exit exam |

| Characteristics of GIS Specialists | Expected Learning Outcomes | Curriculum | Preliminary Assessment Approach and Methods | Results | Curricular and/or Pedagogical Changes |
|------------------------------------|---|--|---|-----------------------------------|---------------------------------------|
| | <p>computer-based geographic information systems</p> <p>To be aware of marketplace dynamics and organizational realities; they stay ahead of change by integrating change</p> | <p>TECS 425 Electronic Communications TECS 515 Multimedia Applications INT 410 Global Telecommunication Networks INT 450 Research Methods Track 2: Environmental Resources AGRI 314 Agricultural Policy BIOL 221 Humans and the Environment BIOL 329 Conservation & Natural Resources BIOL 507 Topics: Biodiversity & Conservation CHEM 304 Organic Chemistry CHEM 304L Organic Chem Lab ECFI 378 Environment and Energy GSCI 200 Physical Geology GSCI 200L Physical Geol Lab GSCI 405 Geomorphology GSCI 435 Hydrology & Water Resources GSCI 000 Geological Hazards IDS 499 Global Environmental Issues Track 3: Human-Urban-Social ECFI 361 Industrial Organization ECFI 494 Intro to Regional Economics POLS 230 Intro to International Relations POLS 310 Intro to Public Administration POLS 400 Urban Politics JUS 483 Criminology JUS 488 Advanced Seminar in Justice Issues SOC 140 Intro to Sociology SOC 384 Modern Social Problems SOC 435 Perspectives on Population SOC 475 Sociology of Urban Areas SOC 544 Sociology of Aging</p> | | <p>about student performance.</p> | |

**A. Department of Geosciences
Affinity Diagram for Bachelor of Science in Geology Degree Program**

| Characteristics of Geology Majors | Expected Learning Outcomes | Curriculum | Assessment Approach And Method | Results | Curricular and/or Pedagogical Changes |
|--|--|---|---|--|--|
| <p><u>Knowledgeable</u> Geoscientists gather and interpret data about the Earth and other planets. They use this knowledge to increase our understanding of Earth processes and resources to Improve the quality of human life.</p> <p><u>Analytical</u> They have analytical/critical skills (enabling) them to discover the meaning of a text), strong research skills, and organizational skills with concern for detail.</p> <p><u>Adaptable</u> Geoscientists realize that the energy industries (mining, oil and gas) as well as the newly emerging environmental firms and governmental agencies will continue to be their main employers; hence our students will be cross trained in various fields of science.</p> <p><u>Articulate</u> They express themselves in rhetorically effective oral and written discourse.</p> <p><u>Collegial</u> They are assertive, cooperative, and supportive of their colleagues.</p> <p><u>Environmentally Competent</u> FHSU geology students will be armed with new and more sophisticated</p> | <p><u>Core Courses</u> To master the basic principles of geology, including physical, historical, mineralogy, petrology and structural. To demonstrate computer literacy in geology. To demonstrate written and oral literacy in the major areas of geology. To demonstrate mastery of knowledge and basic skills in chemistry, physics, mathematics. To demonstrate mastery of the scientific method though laboratory experience.</p> <p><u>CERTIFICATE AREAS</u></p> <p><u>Traditional</u> To demonstrate additional knowledge and skills in paleontology, statistics, and physics or biology.</p> <p><u>Paleontology</u> To demonstrate additional knowledge and skills focusing on paleontology, biology, & biometrics.</p> <p><u>Environmental</u> To demonstrate additional knowledge and skills Focusing on geomorphology, hydrology, and statistics.</p> <p><u>Technology</u> To demonstrate basic knowledge and skills focusing on computer literacy, GIS, and statistics.</p> | <p><u>PROGRAM CORE CURRICULUM</u> To master the basic principles of geology. GSCI 200/200L Physical Geology/Lab GSCI 202/202L Historical Geology/Lab GSCI 310/310L Mineralogy/Lab GSCI 320/320L Petrology/Lab GSCI 450/450L Structural Geology/Lab</p> <p><u>Develops Skills</u> GSCI 452 Field Methods GSCI 552 Field Studies in Geosciences (Capstone course)</p> <p><u>Cognates-Knowledge and Skills</u> MACS 331 Calculus Methods CHEM 120/120L University Chemistry I/Lab CHEM 122/122L University Chemistry II/Lab PHYS 111/111L Physics I or PHYS 211/211L Physics for Sci. & Eng.</p> <p><u>CERTIFICATE AREAS</u> GSCI 460/460L Invert. Paleo. or GSCI 462/462L Paleo. of Lower Vertebrate or GSCI 463/463L Paleo. of Higher Vertebrate PHYS 112 Physics II or PHYS 212 Physics for Sci. & Eng. or BIOL 222 & 223 Prin. of Biol. & Lab MACS 250 Elem. of Statistics GSCI 460/460L Invert. Paleo. and/or GSCI 462/462L Paleo. of Lower Vertebrates and/or GSCI 463/463L Paleo. of Higher</p> | <p>Written examinations and completion of laboratory projects in all required Geoscience courses. Written reports and papers in most Geosciences courses, e.g. GSCI 202, 320, 450, 452. Oral reports (e.g. GSCI 202, paleo) and computer exercises (e.g. GSCI 200, 450, 452) in some geosciences courses. Completion of a concentrated 5 week summer field course (GSCI 552) which integrates traditional and modern technologies in daily projects. Written examinations in Chemistry, Physics and Mathematics, and laboratory projects in all required Chemistry and Physics courses. Written examinations and completion of laboratory projects in all required Physics and Biology courses. Senior students advised to take GRE exam (verbal, quantitative, analytical) to assess their academic skills and prepare themselves for graduate school. Alumni surveys.</p> | <p><u>ENTRANCE/EXIT EXAM</u> Students completing both exams in FY06 showed a 104% increase in their knowledge</p> | <p>PENDING ACADEMIC AUDIT IN FY07</p> |

| Characteristics of Geology Majors | Expected Learning Outcomes | Curriculum | Assessment Approach And Method | Results | Curricular and/or Pedagogical Changes |
|--|----------------------------|--|--------------------------------|---------|---------------------------------------|
| <p>natural resource exploration tools such as, GIS (Geographic Information Systems) training in our 10-computer station GIS laboratory which is able to utilize biological, geographical, and geological data.</p> | | <p>Vertebrate BIOL 130/130L Introductory Botany & Lab <u>or</u> BIOL 150/150L Introductory Zoology & Lab <u>or</u> BIOL 222 & 223 Prin. of Biol. & Lab BIOL 520 Biometry GSCI 405/405L Principles of Geomorphology GSCI 435 Hydrology PHYS 112 Physics II or PHYS 212 Physics for Science and Engineering MACS 250 Elements of Statistics GSCI 240 Introduction to GIS GSCI 261 Computer Applications MACS 250 Elements of Statistics</p> <p style="text-align: center;">Electives in Geology/Geography</p> | | | |

**A. Department of Geosciences
Affinity Diagram for Masters of Science in Geosciences Degree Program**

| Characteristics of Geosciences M. S. Majors | Expected Learning Outcomes | Curriculum | Assessment Approach And Method | Results | Curricular and/or Pedagogical Changes |
|--|--|---|--|---|---|
| <p>Knowledgeable M.S. students should have excellent communication skills (verbal, written) and be computer literate. These skills are adaptable to any scientific field, but here at FHSU, students will orient them in the context of geoscience. The extremely broad training now required in Geology and geography mandates this.</p> <p>Multi-Talented Most employers in the '90s and into the year 2000, will hire M.S. students. FHSU students will be competent in many of the sub-disciplines of Geology. This will allow them to adapt to changing job markets.</p> <p>Adaptable FHSU M.S. students will be equipped to change careers in "mid-stream" if needed. Their preparation in other scientific disciplines will allow them this flexibility.</p> | <p>Goal To gain a knowledge of sequence in layered rocks, learn how to manipulate computer-generated data, and how to write a thesis proposal.</p> <p>Objective #1 Students learn major building blocks of sedimentary rocks.</p> <p>Objective #2 Hands-on computer experience will enable students to manipulate geologic and geophysical data.</p> <p>Objective #3 Students learn various journal formats and eventually generate an M.S. thesis proposal.</p> <p>Goal To pick electives pertinent to their field of specialization (e.g. paleontology, geophysics, sedimentology) and equip themselves for a career in these specialties.</p> <p>Objective #1 Students become proficient in certain laboratory techniques (mapping, petrography) that will allow them to carry on thesis research. They also learn theoretical aspects of applied geology.</p> <p>Goal To choose (depending on their background) appropriate courses that will help students in their thesis research and in their future careers (environmental, mining, petroleum exploration).</p> <p>Objective #1 Candidates learn basic scientific skills required for mensuration, imaging, chemical and mathematical analysis.</p> | <p>Program Core Curriculum Develops Knowledge GSCI 875 Seminar in Geology Develops Skills GSCI 800 Geological Scientific Writing GSCI 899 Thesis GSCI 674 Aerial Photographs and Remote Sensing GSCI 625 Advanced GIS Develops Maturity Electives in Geology/Geography GSCI 705/705L Principles of Geomorphology/Lab GSCI 712/712L Optical Mineralogy GSCI 730 Economic Geology GSCI 735 Hydrology and Water Resources Geochemistry GSCI 780 Depositional Environments GSCI 784 Stratigraphy GSCI 785 Stratigraphy of Western Kansas GSCI 866 Paleobiology GSCI 875 Seminar in Geology Other Science Electives BIOL 706 Scanning Electron Microscopy BIOL 720 Biometry BIOL 756/756L Limnology CHEM 732/732L Physical Chemistry MACS 701 Electronic Data Processing MACS 750 Probability & Statistics</p> | <ul style="list-style-type: none"> • Written examinations. • Completion of computer project in Geoscience. • Scientific essays using preferred journal format. • Successful defense of M.S. thesis (oral & written). • Written examinations and completion of • laboratory projects in all required GSCI courses. • Written examinations and completion of • laboratory projects in all required science • courses. | <p><u>PENDING ACADEMIC AUDIT IN FY07</u></p> | <p><u>PENDING ACADEMIC AUDIT IN FY07</u></p> |

**B. College of Arts and Sciences
Department Staffing Plan and Assignments (Current)
Department of Geosciences**

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|---|-----------------------|---|------------------------|--|--------------------------|------------------|------------------|------------------------|------------------------------------|------------------------------|-----------------------------------|-----------------------------|
| Current Department Needs | Faculty Member | Projected Faculty Expertise | Retirement (Birthdate) | Assigned Instructional FTE's | Rank Current Date | Degree Completed | Track | Current Salary In Line | Nat'l Average For Discipline/ Rank | % Above(Below) Nat'l Average | Peer Average For Discipline/ Rank | % Above(Below) Peer Average |
| Intro to Geol. & Labs Physical Geol. & Labs Structural Geology & Labs Fields Methods & Field Camp Depositional Environments Geophysics | K. Neuhauser | Physical Geology Environmental Structural Geology Geophysics Field Methods | 1946 | 1.0 | Professor 1986 | Ph.D. | Tenured | 65,915 | | | | |
| Intro to Geology Environmental Geol. Geochemistry Mineralogy & Labs Petrology | R. Schott | Geochemistry Environmental Mineralogy Petrology | 1976 | 1.0 | Assistant Professor 2004 | Ph.D. | Tenure track | 42,598 | | | | |
| Intro to Geology Hydrogeology Computer applications in geology Geologic Hazards | Jim Aubel (part time) | | | .125 Fall Semester | | | | 2,500 | | | | |
| Intro to Geology Invertebrate Paleo. & Labs Paleo of Lower Vertebrates Paleo. Of Higher Vertebrates & Labs Scientific Writing Stratigraphy | R. Zakrzewski | Paleontology Stratigraphy | 1940 | 0.5 (Adm. - Sternberg) 0.5 (Instructor) | Professor 1978 | Ph.D. | Tenured | 44,294 | | | | |
| World Geography Remote Sensing Research Design Climatology Internship in Geography Physical Geography | J. Heinrichs | Physical Geography Glaciology Climatology G.I.S. Remote Sensing Statistics | 1957 | 0.5 (Adm.) 0.5 (Instructor) | Assoc Professor 2003 | Ph.D. | Tenured | 68,532 | | | | |
| World Geography Intro. to GIS Intermediate GIS Advanced GIS | R. Lisichenko | Educational Geog. G.I.S. Russian Geog. Remote Sensing | 1965 | 1.0 | Assoc Professor 2006 | Ph.D. | Tenured | 45,379 | | | | |
| World Geography Cartography Intermediate GIS | T. Schafer | Physical , Regional Ag. Geog., GIS Cartography | 1959 | 1.0 | Assoc Professor 2006 | Ph.D. | Tenured | 46,587 | | | | |
| World Geography U.S. Geography U.S. Human Geog. Cultural Geography Orientation to Geog. | P. Phillips | Regional Geog. U.S. & Kansas Cultural Geog. | 1943 | 1.0 | Professor 1991 | Ph.D. | Tenured | 68,413 | | | | |
| World Geography | K. Kuntz Part Time | Regional Geog. | | 0.5 | Instructor | MS. | Non Tenure Track | 10,000 | | | | |

C. Bibliography of Departmental Scholarly Activity

Books, book chapters, and refereed articles published

Heinrichs, J., *The Climate of Hays Kansas, from 1867 to 1999: Variability, Trends, and Influences*, Fort Hays Studies, Fourth Series, Number 2, 60 pp., Spring 2006.

Neuhauser, K. R., T. C. Schafer, R. Lisichenko, J. F. Heinrichs, *I-70 Sinkhole Analysis Project: Hays, Kansas*. Kansas Geologic Survey, 2005.

Neuhauser, K. R., *Geologic Map of Osborne County, KS: Map M-102*, Kansas Geological Survey, 2005.

Neuhauser, K. G., T. C. Schafer, and R. Lisichenko, *Volumetric Calculation and Life Expectancy of the City of Hays [Kansas] Industrial Landfill Using GPS and ArcGIS and Spatial Analyst GIS*. KGS, Open-file Report 2004-35. Kansas Geologic Survey. Lawrence, Kansas, 2005.

Zakrzewski, R. J., and G. S. Bever. Microtids from the Fiene local fauna (Irvingtonian) Smith County, Kansas. *Journal of Vertebrate Paleontology*, 25(supp. to #3):133A, 2005.

Non-refereed articles and presentations

Heinrichs, J., The Morphology of the Sea Ice Edge at Multiple Scales From Remote Sensing Data, poster presented at the American Geophysical Union annual meeting, San Francisco, CA, December 5-9, 2005.

Heinrichs, J., Where the cryosphere meets the hydrosphere: Remote sensing of the sea ice edge, Invited seminar at the Jet Propulsion Laboratory, Pasadena, CA, December 1, 2005.

Heinrichs, J., J. Maslanik, M. Sturm, D. Perovich, J. Stroeve, J. Richter-Menge, D. Cavalieri, T. Markus, J. Holmgren, K. Tape, and A. Gasiewski, The AMSRice03 validation project: activities and results. *Proc. SPIE Int. Soc. Opt. Eng.*, 5977-06, Bruges, Belgium, September 19-22, 2005, 9 pp.

Heinrichs, J., Using RADARSAT imagery to evaluate the NASA Team Ice Concentration Algorithm 2 applied to gridded AMSR-E data, AMSR-E Science Team workshop, Honolulu, HI, September 13-15, 2005.

Heinrichs, J., The influence of the El Niño/La Niña cycle on the occurrence of tornados in Kansas, poster presented at the Sigma Xi Science Research Showcase, Hays, KS, April 27, 2005.

Lisichenko, R., Utilizing GIS Towards Indian Reservation Management, Kickapoo Indian Nation From Kansas, September 12, 2005

Lisichenko, R., Implementing GIS At The Multi-County Level, Northwest Kansas GIS Consortium Meeting, Stockton, Kansas, July 13, 2005

Neuhauser, K. R., KAS Annual Meeting, Wichita, KS, A high-plains search for a crashed B-29, 2006.

Phillips, P., "The Middle East: A Regional Approach", Kansas Geographic Alliance: Summer 2005.

Phillips, P., "Population Geography: Demographics and Migration.", Kansas Geographic Alliance: Summer 2005.

Phillips, P., "Regions and Scale: A Geographer Looks at the World." Kansas Geographic Alliance: Summer 2005.

Phillips, P., "Department Chairs: Perspectives on the World," A panel discussion for Virtual College's International Cooperating Teachers Workshop August 15, 2005.

Phillips, P., "Stones, Skulls, Shrubs and Evergreens: A Cultural Geographer's View of Cemetery Landscapes." Sternberg Museum Public Presentations. September 2005.

Phillips, P., "India: 800 Million Plus Two," PEO women's group of Plainville, KS. January 2006.

Phillips, P., "The United Arab Emirates: A Petrodollar Sandcastle," March 2006 for Sternberg Geosciences Club.

Phillips, P., " China: A Kaleidoscope of Images", March 2006 for Hays High International Club

Rebar, J.J; Mullin, T.C., Vishnefske, M.E., Ray, N.B., and **Neuhauser, K.R.**, Magnetometer survey for a crashed WWII B-29 bomber in Russell County, KS: An Example of community outreach: GSA Annual Meeting, Salt Lake City, UT; Abstracts with Programs, 37 (7), p. 532, 2005.

Schafer, T., and Bettejean Wooding, Ingrid Landgraf, Kenneth Nelson, Mark Dinkel. *Barriers to the Wider Implementation of GIS in the State of Kansas*. Kansas GIS Policy Board, Topeka, Kansas 2005.

Schafer, T., and Bettejean Wooding, Ingrid Landgraf, Kenneth Nelson, Mark Dinkel *Recommendations for Increasing Local GIS Use Throughout Kansas*. Kansas GIS Policy Board, Topeka, Kansas 2005

Schafer, T., *Project SafeNet: A Template for a Startup School Security GIS* at the Office of Safe and Drug-Free Schools Annual Conference, Washington D.C., August 2005

Schott, R. C., 2005, Integrating Google Earth Imagery and Cubic QTVR Panoramas into Web-based Virtual Field Experiences: Geological Society of America Abstracts with Programs, v. 37, no. 7, p. 408.

Zakrzewski , R. J. 2005. Review – Biodiversity response to climate change in the Middle Pleistocene – the Porcupine Cave fauna from Colorado. A.D. Barnosky (ed.). 2004. Univ. Calif. Press, Berkeley, 385 p., Journal of Paleontology, 79:1239-1240.

Scholarly performances and other creative activities

External grant applications submitted

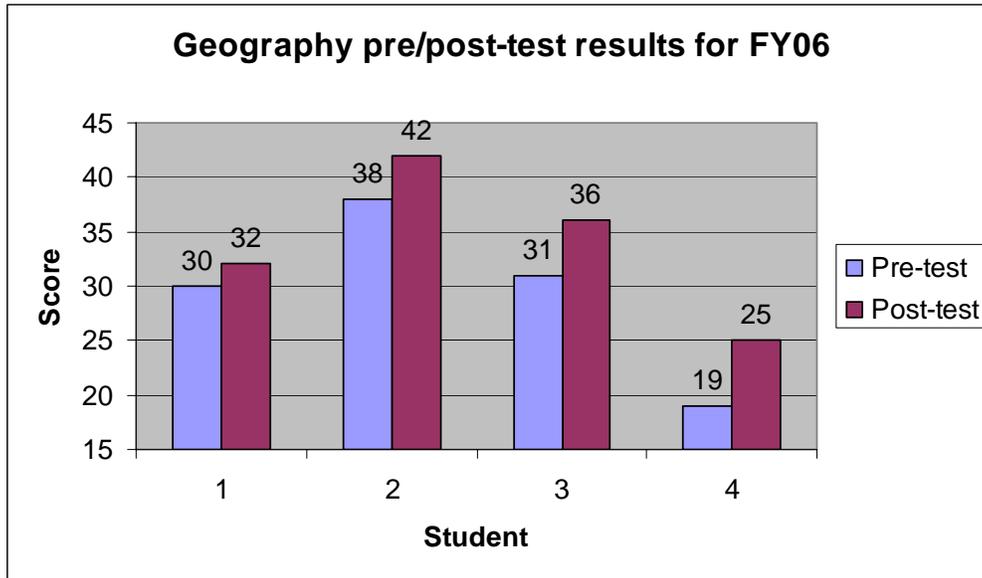
| Grant description | Amount requested |
|--|-------------------------|
| Heinrichs, J (PI) ., J. Stroeve, J. Comiso, E. Hanna, National Aeronautics and Space Administration, "Interannual and seasonal variability of Arctic and Antarctic sea ice edge morphology and links with climatic forcings", submitted May 2006 | 378,094.52 |
| Heinrichs, J.(PI) , M. Tschudi, T. Markus, B. Holt, A. Piryatinska, W. Meier, R. Schott , K. Trantham, National Aeronautics and Space Administration, "Evaluation and improvement of sea ice edge determination techniques using active and passive microwave remote sensing data", submitted May 2006 | 1,071,346.42 |
| Heinrichs, J., K. Neuhauser, T. Schafer, and R. Lisichenko , "ESA SAR Interferometry ENVISAT ASAR Oilfield Land Subsidence Russell County, KS", 2005 (data grant only) | 0.00 |
| Heinrichs, J. , KansasView, "Detection and temporal analysis of brushfire scars in Kansas using multispectral remote sensing imagery", Spring 2006 | 1987.38 |
| Heinrichs, J. F. and R. Lisichenko .,National Geographic Society, "Alliance State Grant", Fall 2005 | 50,000.00 |

| | |
|--|----------------------|
| Lisichenko, R., P. E. Phillips, T. C. Schafer , Kickapoo Indian Nation, “Kickapoo Indian Reservation GIS Grant”, 2005 | 40,000.00 |
| Lisichenko, R. , University of Nebraska at Lincoln, “GIS Geologic Mapping Grant” | 7,500.00 |
| Maslanik, J., M. Sturm, D. Long, J. Heinrichs , National Aeronautics and Space Administration, “Sea Ice Roughness as an Indicator of Fundamental Changes in the Arctic Ice Cover: Observations, Monitoring, and Relationships to Environmental Factors”, submitted May 2006 | 67,562.52 |
| Neuhauser, K. R., Schafer, T. C., Lisichenko, R., Heinrichs, J. F. , Kansas Geologic Survey, “Remote Sensing Of Impervious Land Parcels: Hays, Kansas”, 2005 | 5,000.00 |
| Neuhauser, K. , FHSU Student Govt. Equal Opportunity Fund Academic Scholarship Grant, 2005 | 2,150.00 |
| Neuhauser, K. , FHSU Graduate School Grant to purchase Digital Globe Quickbird image, awarded, 2005 | 2,000.00 |
| Neuhauser, K., T. Schafer, R. Lisichenko, and J. Heinrichs , Kansas Department of Transportation, “Subsidence of I-70 sinkhole” | 25,000.00 |
| Sturm, M., J. Maslanik, D. Cavalieri, T. Markus, D. Perovich, J. Heinrichs , National Aeronautics and Space Administration, “AMSRIce06 sea ice validation program”, submitted Fall 2005 | 5,996.06 |
| Zakrzewski, R. , Challenge Grant between USDA Forest Service & Sternberg Museum of Natural History, 2005 | 7,300.00 |
| Total (14 grant applications) | \$1,663,936.9 |

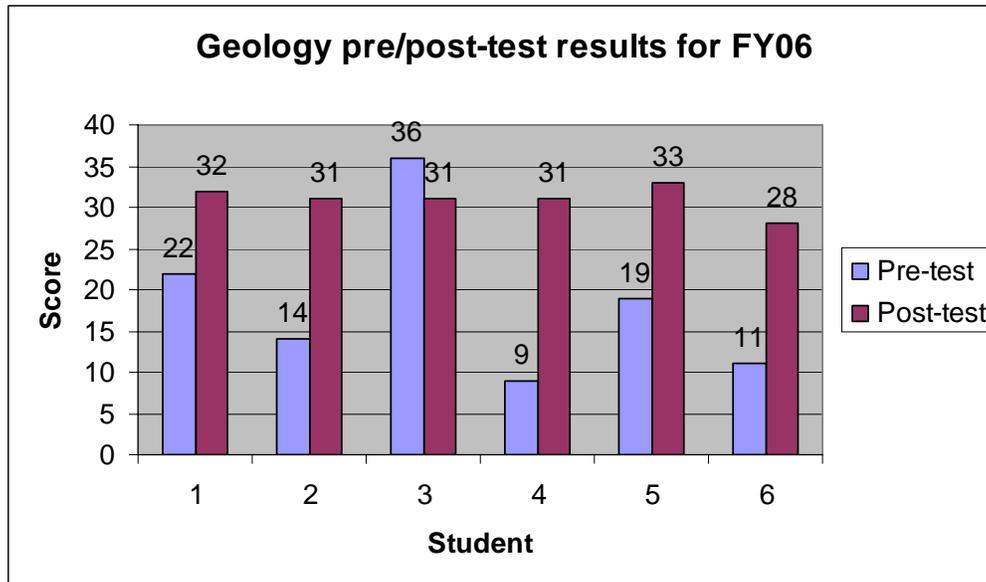
Funded external grants

| Grant description | Amount awarded |
|---|-----------------------|
| Heinrichs, J., K. Neuhauser, T. Schafer, and R. Lisichenko , “ESA SAR Interferometry ENVISAT ASAR Oilfield Land Subsidence Russell County, KS”, 2005 (data grant only) | 0.00 |
| Heinrichs, J. , KansasView, “Detection and temporal analysis of brushfire scars in Kansas using multispectral remote sensing imagery”, Spring 2006 | 1987.38 |
| Heinrichs, J. F. and R. Lisichenko. , National Geographic Society, “Alliance State Grant”, Fall 2005 | 50,000.00 |
| Lisichenko, R., P. E. Phillips, T. C. Schafer , Kickapoo Indian Nation, “Kickapoo Indian Reservation GIS Grant”, 2005 | 40,000.00 |
| Lisichenko, R. , University of Nebraska at Lincoln, “GIS Geologic Mapping Grant” | 7,500.00 |
| Maslanik, J. (PI), D. Long, J. Heinrichs , National Aeronautics and Space Administration, "Investigations of Sea Ice State Using Multisensor Data, Time History, and Lagrangian Tracking", | 46,900 |
| Neuhauser, K. R., Schafer, T. C., Lisichenko, R., Heinrichs, J. F. , Kansas Geologic Survey, “Remote Sensing Of Impervious Land Parcels: Hays, Kansas”, 2005 | 5,000.00 |
| Neuhauser, K. , FHSU Student Govt. Equal Opportunity Fund Academic Scholarship Grant, 2005 | 2,150.00 |
| Neuhauser, K. , FHSU Graduate School Grant to purchase Digital Globe Quickbird image, awarded, 2005 | 2,000.00 |
| Neuhauser, K., T. Schafer, R. Lisichenko, and J. Heinrichs , Kansas Department of Transportation, “Subsidence of I-70 sinkhole” | 25,000.00 |
| Sturm, M., J. Maslanik, D. Cavalieri, T. Markus, D. Perovich, J. Heinrichs , National Aeronautics and Space Administration, “AMSRIce06 sea ice validation program”, submitted Fall 2005 | 5,996.06 |
| Zakrzewski, R. , Challenge Grant between USDA Forest Service & Sternberg Museum of Natural History, 2005 | 7,300.00 |
| Total (11 grants awarded) | \$146,933.44 |

D. Department Program Assessment Results



The above chart shows the change in score between the pre-test and post-test for the four geography students who completed the two tests in FY06. The average score improvement for the students was 4.2 (with 50 points for the exam) and the average percentage improvement was 16%.



The above chart shows the change in score between the pre-test and post-test for the six geology students who completed the two tests in FY06. The average score improvement for the students was 12.5 (with 50 points for the exam) and the average percentage improvement was 104%.

GSCI 454 Field Studies in Geosciences (also known as Geology Field Camp)

Geology Field Camp is a capstone course for the Professional BS Degree in Geology. All students pursuing a Professional degree in geology are required to complete this 6-credit course, which is part of the department's mission statement. The purpose of the course is to evaluate the student's abilities in all of the core courses within the degree. The course is an intense 4-week, in-the-field, 7 am to 8 pm, face-to-face direct application class.

Subjects covered include: physical and historical geology, mineralogy, petrology, paleontology, geologic field methods, and structural geology. Since 1994, applied geophysics and scientific report writing were added; and, since 1999 an integrative remote sensing, GIS using ArcView and GPS project (field survey, computer modeling using SURFER and GRAPHER, and a scientific report) were included. A field sample (minerals, rocks, fossils, special features within rocks, etc.) identification exam, as well as a written final exam have always been at the end of camp.

Examples of projects that students complete include geologic air photo mapping, measuring and describing stratigraphic sections, constructing and correlating structural and stratigraphic cross sections, interpreting depositional environments, completion of geochronologies, logs kept in field notebooks, collecting minerals, rocks and fossils, and stereonet analyses. Further, students are exposed to engineering and environmental geology and tours of surface and subsurface mines are arranged when possible. Students have also completed projects for the United States Geological Survey, the Bureau of Land Management, the Florida Parks System, the Kansas Archaeology Office, Carlsbad Caverns National Monument, and Historic Fort Hays. The dinosaur display in Tomanek Hall is one major result of the efforts of FHSU students attending field camp. Such an effort is not to be ignored - - it is an effort that has brought much to FHSU in terms of local school tours, students and tourist visits to campus, not to mention the educational significance to many geology classes from GSCI 100 to GSCI 680.

Since 1995 I have recruited over 30 students from 13 other states. This additional blend of personalities and differing backgrounds has been beneficial to our existing FHSU students.

So, how do our students do? Grades have averaged a ~B- over the past 25 years and FHSU's students (not recruited out-of-state students) have done slightly better when compared to students from Wichita State University (during 1981-1984). However, it is very difficult to receive an 'A' letter grade in this course and only 2% of FHSU's students have received an 'A'. Nevertheless, the students have perceived the field camp course to be very beneficial in their pursuit of a job and most have truly enjoyed the course given the rigorous projects, exams and 'field conditions' (long days, hot/dry/rainy/snowy/dusty/buggy days, etc.).

Should field camp change? In my opinion, no. I alter and change projects periodically to keep things interesting but also to make sure that no 'passing of answers of projects occurs'. To my knowledge this has not happened so far. I also change things if unique projects arise from opportunities from federal and state agencies as mentioned above. Setting up projects involves a great deal of paper work well in advance of the project. Permission is required from land owners and they often have very strict conditions so change is simple. I've developed friendships and trust with all of the land owners which is vital to the success of any field camp. The only change I would make is that if a new technology comes along that I feel that FHSU can afford to provide to our students I will integrate such projects into the camp. I've done that in the mid-1990s as we included the integrated remote applied geophysics/GIS/remote sensing/scientific report project.

This course is a very visible course. Our projects take us into many different parts of the United States (over 20 states in 25 years) and into Canada since 1981. We often camp with other field camps from other universities and this provides another part of education for our students. People we meet are interested in what we do and want to hear about FHSU, thus we are ambassadors for FHSU.

Enrollments have varied since 1981 from a high of 30 students back when oil was in boom, to a low of 4 during the 1990s and 2005, but have averaged around 13 since 1981. The optimum for this course is 10. I base this on a variety of reasons: cost for a van (in order to cover all the projects well, no more than 2800 miles should be covered given the 'in-field' schedule); seating arrangement in a 15-passenger van (must consider all the field gear a student brings along; usually we seat 2 students per bench seat); cost and time involved in shopping for food, cooking, and cleaning for meals; grading projects and reviewing project answers; setting up camp sites; arranging

for group sites (most national and state parks require a minimum of 10 people for group site reservations (unfortunately this must be done through a ticket office in New York that will not take FHSU Visa Card); and the needed face-to-face time with each student in the field.

Logistically, I would prefer 7 students because of the time involved in grading, shopping for food, cooking and cleaning, and the van seating arrangement. A 15-passenger van can legally hold 2 students per bench seat and the back bench seat is removed to store student camping gear, and with the TA driving the van, that allows for only 7 students. The departmental trailer is full with study tents, tarps and tables, cook kit, ice chests for fresh food, plastic tubs containing food, cooking utensils, lanterns, fuel, and staff camping gear. A TA is a must for a group this size. The TA helps drive the van (one must not be tired behind the wheel; I can give you specific tragedies involving this), helps cook, clean, supervise students, watch for safety in the field, and even help with grading when needed.

Lastly, I feel we need to keep our field camp intact. Although recruitment of out-of-state students has helped, when we have 7-10 FHSU students I would prefer to not recruit that year. Field Camp is a required course, and if we were to ever eliminate our field camp course, FHSU students would have to be 'farmed out' to other university field camps, and I know for a fact that such a policy would double or even triple the their costs to attend. I have worked hard with past Chairs and FHSU administrators to develop our affordable field camp and I would hate to see it be eliminated. I have been able since about 1993 to obtain EOF scholarship grants from FHSU's Student Government Association to help defer costs. If students went elsewhere I doubt that SGA could see fit to provide funding.

GSCI 695 Internship in Geography

The capstone course for the FHSU Geography program is GSCI 695 (Internship in Geography). In this course, students engage in a supervised work experience with a strong directed learning component. Students are responsible for identifying an appropriate agency for their internship, although often suggestions are made or notices sent by the responsible faculty member. An internship contract is negotiated, and the student begins working. During the work period, the student maintains a detailed and reflective log of all activities, and discusses progress periodically with the agency supervisor and university supervisor to identify challenges and areas for improvement. At the completion of the internship course, the student submits a portfolio and internship report, which are graded by the university supervisor on the basis of their maturity, professionalism, and reflection. The agency supervisor also submits half of the final grade based strictly on workplace performance and behavior standards. Roughly 12 students each year complete the internship course, typically 5-6 in the summer with the remainder divided into the two academic semesters.

Some agencies with which interns have been placed are within the local community, including the City of Hays Public Works and Planning Departments, the Ellis County Emergency Services Office, the County Appraiser's Office, Midwest Energy, and Carlson Surveying and Mapping. Students are encouraged to explore internship possibilities aligned with their interests or, in some cases, involving travel or another experience important to their professional development. Interns have worked at the Defense Intelligence Agency, the Environmental Protection Agency, Kansas Fish and Wildlife, Kansas Department of Health and Environment, Garmin, Inc.. Several interns have worked in the conservation field in places such as Alaska, California, and Idaho using technologies and techniques they have learned at FHSU. Several others have participated in Research Experience for Undergraduates (REU) programs at universities, where they worked with faculty and graduate students to design and conduct professional-level research projects.

Performance by students in the internship relative to work skills and readiness to be a professional is assessed by comments from internship agencies:

"Megan grasps how Autodesk Map 5 and Autodesk Raster Design 3 work. Her decision and problem solving skills are used while working on Land Use and Hoemsite delineation. Megan isn't afraid to ask questions and never complains about the tedious work that she does day after day."

"Elaine proved herself very useful and useful. Our office would highly recommend Elaine for any future jobs that she will be applying for."

“Clint is an excellent student of high integrity. It was a pleasure for us to have him with us this semester.”

The evaluations by agency supervisors also provide quantitative information about the performance of our interns. The table below summarizes the average scores for agency evaluations, with 1 indicating Excellent, 2 indicating Above Average, 3 indicating Average, 4 indicating Below Average, and 5 indicating Not Satisfactory.

| Characteristic | Average score |
|--|---------------|
| Attendance and Punctuality | 1.2 |
| Appearance | 1.6 |
| Dependability | 1.3 |
| Initiative | 1.5 |
| Grasp of relevant agency functions | 1.6 |
| Ability to relate to people | 1.4 |
| Ability to perform assigned tasks | 1.4 |
| Oral and written communication skills | 1.5 |
| Cartographic, GIS, and other geographic skills | 1.7 |
| Responsiveness to supervision | 1.3 |
| General assessment of student performance | 1.3 |

Clearly, the agencies employing our majors are satisfied with their performance, since the score in every category is above average or excellent. In most cases, the interns go on to other positions elsewhere, however there have been a number of interns who were hired immediately or shortly after completing their internship by the internship agency. This has amounted to approximately 8 instances over the past 5 years, or about 13% of the total.

Over the 5 years the course has been offered, several changes have been made to fit the course better to employers' needs. For example, the evaluation form was streamlined to reduce agency supervisor effort. In addition, the midcourse and course completion onsite meetings were added, and have been of great value for assisting the intern to address issues or receive advice. At the present time, three areas stand out as opportunities for improvement in the course, as shown by the evaluation results above. Appearance has already been addressed by incorporating a unit on business dress and etiquette in the Research Design and Professional Skills course, but will be extended by including a refresher on workplace appearance when students come in for their pre-internship conference. Improved grasp of relevant agency functions will be addressed by including a section to describe the agency's goals, structure, and workflow as part of the initial material turned in by an intern. The lowest score is for geographic skills, including GIS. In some cases students are asked to learn new special-purpose software packages as part of their internship. In many more, the technology has evolved so rapidly in just a year or two that students are unfamiliar with the latest version when they start their internships. The department will address this area by conducting refresher portions within every GIS course to ensure that students are kept up to date in this rapidly changing field.

E. Other Departmental Information

G. Special AQIP Report