

Unit Productivity Award Application Academic Year 2003-2004

Academic Unit Name: Department of Geography and Geology

Department Head: David J. Keeling

Summary of Application (Key Indicators of Productivity for 2003-2004):

SUMMARY OF APPLICATION:

- 🌐 The Department's Geography program has been designated for "enhancement" in WKU's program review process just completed for the 1998-2003 period.
- 🌐 54 students attended eleven professional meetings and conferences, with 45 presenting research papers or posters.
- 🌐 Majors and minors in the Department increased by 25 % over the previous year.
- 🌐 57 students participated in study abroad programs, field camps, and field trips during the year, with an additional 200+ students visiting Mammoth Cave National Park as a requirement for the Physical Geography Gen. Ed. course.
- 🌐 Faculty and students were featured 30+ times in media print and online articles.
- 🌐 The Department awarded 21 GIS Certificates this year, while another 24 students have completed half of the certificate requirements.
- 🌐 Three students earned first-place awards at the annual Sigma Xi student conference; 4 students won awards at the Kentucky Science Academy meeting.
- 🌐 Eight faculty visited 16 overseas locations for research, professional development, conferences, study abroad programs, study tours, and collaborative activities, including three separate visits to China.
- 🌐 Michael May won the Ogden College Award for Public Service, in recognition of his efforts to promote sustainable development in the community and region.
- 🌐 54 students were actively engaged in applied research under faculty supervision through the ARTP and through externally funded research projects.
- 🌐 Six undergraduate and graduate students have been accepted to advanced graduate programs beginning this Fall.
- 🌐 Grant funds from the National Oceanic and Atmospheric Administration (NOAA), along with internal support, secured an advanced Mesoscale Meteorological Model to enhance student and faculty research.
- 🌐 A Geology alumnus was featured prominently in a Smithsonian *Air and Space Magazine* article on asteroid impacts.
- 🌐 A geology faculty member won a research award from the Oak Ridge Associated Universities for a multidisciplinary project in Java, Indonesia.

FOR OFFICE USE ONLY: Data will be filled in by Institutional Research

# of Majors	F 99	F 00	F 01	F 02	F 03
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SCH, fall	F99	F 00	F 01	F 02	F03
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of Graduates (Most recent 5-year data for August/December/May graduations)

of Faculty: _____ Full-time _____ Part-time FTE

WKUSES Participation Rate:

Department of Geography and Geology Unit Productivity Award Application

I. Increasing Student Learning

The primary student-learning goal of the Department for the 2003-2004 academic year has been to increase the number of students engaged in directed research, study-abroad programs, field camps, internships, and professional conference activities. We achieved our goal of **120 students** engaged in these types of learning activities, the highest participation level in over a decade for the Department and an increase of 20% over last year. The Department's long-term goal is to have every major engaged in a research-related activity that leads to directed research, study abroad, internship, or conference participation experience. Faculty believe that blending classroom learning with community-centered experiences (local, regional, or international) is a key element in the intellectual and skill-based development of our students. The social and economic development of communities in our service area (and beyond) can only be achieved if students receive both an intellectual and a practical preparation for life after university.

Twenty-two students participated in the Department's second study-abroad program last March that visited the Gersace Research Station in the Bahamas, and ten students participated in the third departmental program that toured Ireland and the United Kingdom in June. Throughout the course of these programs, students focused on a variety of environmental, geological, and social issues, ranging from damage to the Bahamas reefs to conflicts between Catholics and Protestants in Belfast, and they completed research papers, journals, or projects based on original fieldwork. In October 2003, fourteen students and two faculty participated in a geoscience field trip to southern California, studying geological, environmental, and social issues related to national park management and resource use. Students have developed a website (<http://geoggeol.wku.edu/california/index.html>) with details of the trip. Eight students participated in the regular end-of-semester southeastern U.S. geology field trip, with another three students enrolled in the summer geology field camp run by Dr. Wulff in Utah, part of a consortium with the University of Iowa. Two geoscience graduate students spent three weeks in China in March, leading a GIS and cave mapping expedition to Hunan province to address water accessibility problems that affect over 50,000 rural residents.

This academic year, 54 students were actively engaged in directed research projects and other activities related to the ARTP and Programs of Distinction (Kentucky Climate Center, Hoffman Institute, Center for Cave and Karst Studies, and the Water Resources program), a six-percent increase over last year. Moreover, dozens of students are employed by the Lost River Cave program as guides and assistants. The Department also has partnered with the Biology Department in a contract with Mammoth Cave National Park that allows 30 students to work with the U.S. Park Service on an ecological monitoring program. Students will have access to the Park's \$40,000 Polymerase Chain Reaction machine, providing them with valuable skills not available on campus.

Although student learning skills are developed through both classroom and applied research experiences, faculty firmly believe that attendance at, and participation in, professional meetings and conferences is another important aspect of the learning process for students. Faculty worked hard this past year to encourage more students both to attend and to present research at conferences. Four students attended the National Speleological Society Conference in Porterville, California, last August, and presented their research. Later in August, two students presented research papers at the 10th annual Kentucky GIS Conference in Louisville. Two graduate students attended the National Cave and Karst Management Symposium in Gainesville, Florida, in October, and two geology students presented their research at the 115th annual meeting of the Geological Society of America in Seattle in early November. Later in November, 14 students presented research papers and posters at the annual Kentucky Academy of Science conference convened in Bowling Green, and two graduate students presented their thesis research at the 58th Southeastern Geographers meeting in Charlotte, North Carolina. In January, eight students participated in the annual Posters at the Kentucky Capitol, showcasing recent research in GIS, and, in March, six graduate students presented research at the Centennial meeting of the Association of American Geographers convened in Philadelphia. Finally, three students presented research papers and posters at the regional GSA meeting convened in St.

Louis, and ten students presented research papers at the annual Sigma Xi Research conference, convened at WKU in April.

Another major challenge during the past year has been to engage students more successfully with the new technologies, theories, and applications that are demanded by employers and society. The Department's mission is to continue developing an interdisciplinary approach to Geographic Information Sciences (GIS) that provides learning opportunities for students across the university and from all disciplines. Supported by *Action Agenda funds*, the GIS program continues to grow steadily, with 34 students now having completed the full GIS Certificate Program, the only one of its kind in the Commonwealth. Another 60 students are enrolled in the introductory GIS course for the summer and Fall 2004 semesters, while a further 24 students have completed half of the requirements for the GIS Certificate. The Department provides a full-time GIS Director/instructor, funded initially by *Action Agenda money*, and employs four students as hands-on GIS lab assistants. Another six students are engaged in GIS-related research, funded in part by a \$10,000 grant from Institutional Technology and a \$3000 grant from Facilities Management to continue the complete digitization of the campus. New initiatives in the geology program (including a complete revision of the geology major) have focused on encouraging students to utilize more technology in their research, especially the Scanning Electron Microscope, equipment at the Materials Characterization Center, GIS, and other advanced equipment. Five students who presented posters at the GSA, Kentucky Academy of Science, and Sigma Xi conferences demonstrated particular skill with these technologies.

The Department's 12-hour GIS certificate program continues to attract new students from other disciplines (20 new students this year declared GIS as a major or minor, along with five graduate students). A new GIS faculty member has been recruited for the 2004-2005 academic year, allowing for more GIS courses to be offered and to take advantage of developing partnerships with the Engineering, Architectural and Manufacturing Sciences, Biology, Recreation, and Business departments to improve interdisciplinary opportunities incorporating GPS, GIS, and other land-mapping technologies. In addition, *the Department continues to collaborate* with the Agriculture, Business, Biology, and AMS departments to develop specific data sets for these departments' majors to use in a GIS mapping environment. Increasing levels of inter-departmental collaboration are designed to enhance the learning opportunities for students and to promote a multidisciplinary approach to problem-solving strategies.

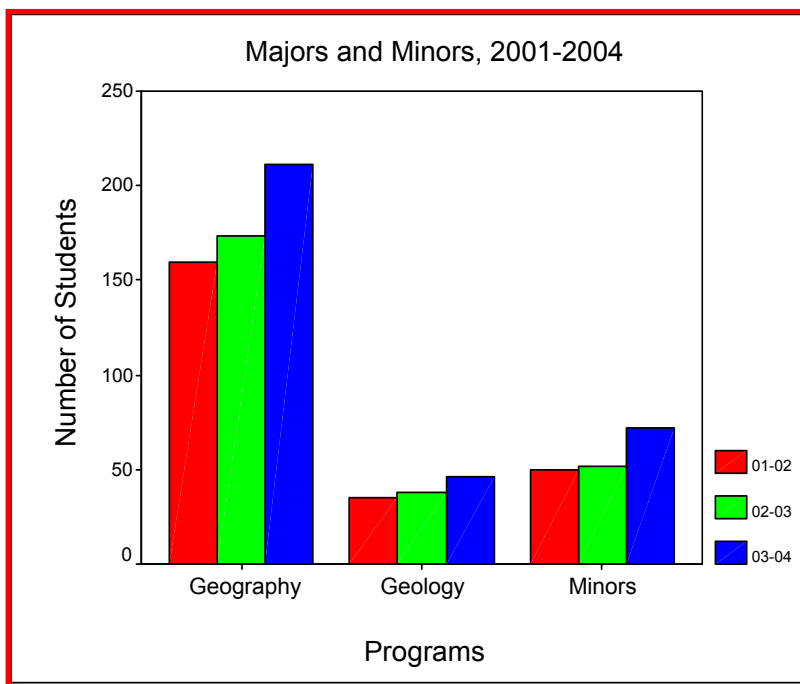
Throughout the year, the Department continued to refine its curriculum, in consultation with graduate and undergraduate students in the program ("*closing the loop*"), with additional changes and new courses in the process of approval by the relevant university committees. A complete revision of the Geology program is working its way through the relevant university committees, new courses on water resource management are in development, and seven one-hour "development" courses in basic geoscience (tornadoes, earthquakes, orienteering, etc.) are proving attractive to undeclared students as they think more about majoring in the sciences. Coupled with the redesign two years ago of the Department's core educational objectives, new and enhanced program tracks in geography now *provide our students with a much higher level* of intellectual and career development. Every student majoring in the Department takes six foundation courses that provide them with basic GIS, statistical, scientific writing, research methodologies, and critical thinking skills. This set of courses should prepare students more rigorously for the advanced courses and is designed to *improve the retention rate of students in the program and to increase the graduation rate of majors*. About 26 percent of the Department's graduates in 2003-2004 have taken higher-level math, chemistry, and physics courses to support their major, especially those focusing on GIS, environmental management, geology, and climatology. The Department's goal is to reach 50 percent by 2006 in this area.

The Department has targeted the GIS Certificate program for *academic improvement* after student assessments, course evaluations, and faculty feedback from more advanced courses suggested that dedicated lab sections be added to account for the significant time required for independent project development. With the addition of a new GIS-trained faculty member this coming Fall, the program continues to undergo significant pedagogical and technical improvement. Assessment activities also revealed significant weaknesses in the structure of the geology program, in terms of training in spatial statistics and GIS, and the major has undergone an academic-year-long

review designed to improve its relevance and attractiveness to undergraduates. In addition, assessment activities have revealed that students still are not engaging effectively with the scientific method and with the major theories and advancements in the geosciences. As a consequence, greater attention is being paid in the undergraduate and graduate research methods courses to address this deficiency. As an example of “closing the loop” between assessment and program quality enhancement, the restructuring of these courses demonstrates how valuable regular assessment and refining of course content, pedagogy, and technology can be. The quality of the Department’s majors will be enhanced over the coming years as a consequence of this process.

II. Developing the Student Body

Most of the Department’s majors in geography and geology are recruited from freshmen in the general education classes. Consequently, faculty expend significant effort connecting with freshmen by promoting the Department’s majors and minors, recruiting for the geology and geography clubs, encouraging freshmen to become familiar with the Programs of Distinction, and targeting freshmen for assistance by the Department’s peer tutors. Overall, based on trends for the past decade, the number of majors and minors in the Department is holding steady – this despite a national trend of declines in science enrollment in recent years. At the end of the Spring 2004 semester, the Department recorded **211** majors in geography (172 in 2003), **46** in geology (38 in 2003), and **72** total minors (52 in 2003). *This is a 25 percent increase in declared majors and minors over the 2002-2003 academic year.* Of these, 14 majors graduated in May (along with 7 minors), with another eight scheduled to graduate in August. The Department graduated 31 students from its major programs between August 2003 and May 2004. The Department has a target of at least 40 new majors each year to maintain the numerical strength of its programs, and it has generally met this target over the past few years.



The Department continued its long-standing tradition of excellence in recruitment, teaching, learning, advising, and retention. It focused again this year on *improving retention*, particularly in the lower-division courses that satisfy both general education and major requirements, as most students entering WKU have very little preparation in the spatial sciences. Preliminary map quizzes continue to show that the majority of students are unable to find their own state or county on a basic map, and few are able to engage competently with the basic elements of geoscience. Consequently, the drop-out or failure rate in lower-division classes continues to run over fifteen percent on average per course per semester. After introducing a

Peer Tutor Program in 2001 designed to identify and help at-risk students, the Department focused its Peer Tutor this year on students who failed their first exam or who showed signs of struggling with the introductory material. The tutor provided additional academic support outside normal class hours, assisted in explaining key concepts, and offered assistance to students who failed to grasp the basic geoscience concepts. Although this program is only in its third year, the results are encouraging. Approximately *46 students sought assistance* during the academic year, some on a regular basis, and the Tutor logged over 320 hours of student assistance. The Department especially relies on the 6th-

week Freshman assessment program to identify and assist at-risk students and to aid in their retention.

Incoming freshmen pre-declared in the geosciences are encouraged to take GEOG175 (*Freshmen Seminar*), and this course typically enrolls 10-15 students each Fall semester. Every incoming freshman is advised by the Department Head and assigned a departmental advisor. Students are required to meet with an advisor at least once a semester, and the Department Head advises all students before they submit their degree programs. Every major is also advised during the semester of graduation, either by the principal advisor or by the Department Head. The Department offers one-page information sheets on its various programs, supplemented by glossy publications provided by the professional organizations in geography and geology, and these are distributed at every opportunity to prospective students. The Department also responds with a personal letter and a copy of its recruiting material to each potential student identified by the enrollment office, solicited via the website, or contacted by email. Over the past year, the Department has mailed material in response to *over 200 student inquiries*, resulting in at least ten students pre-declared as geography or geology majors for the Fall 2004 semester. Moreover, the Department participates in many of the WKU-sponsored *recruitment fairs* held around the state, and it continues to recruit students at state and regional scientific meetings and conferences.

The Geography, Geology, and Geoscience clubs play important roles in the recruitment, retention, and development of students. These three student-led organizations provide mentoring, peer support, research opportunities, seminars, and field-trip experiences for members. For example, through the efforts of the Graduate Geoscience Society, six students traveled to Philadelphia in March to attend the annual conference of the Association of American Geographers, accompanied by ten faculty. This is the largest contingent of students and faculty from the Department to attend a national geography conference since 2003's record attendance of 12 students and faculty. Students raised money for conference and other trips by holding a bake sale, by selling ice cream and sodas, by soliciting support from faculty and other students, and from travel scholarships provided by the WKU Foundation and the Department. The Geology Club students raise money and foster interest in their activities through regular rock and gem sales, seminars, and tee-shirt sales, and regularly attend annual regional and national geology meetings and conferences. Additionally, this year the Graduate Geoscience Society sponsored and helped to run the state-wide National Geographic Bee for grades 4-8, with five faculty and ten students involved in administering the event. The Bee was held for the second time at WKU, with over 100 students and 150-200 parents and teachers in attendance. Faculty also are active in the Kentucky Geological Society, developing statewide initiatives to introduce students to the geological sciences. The Department remains hopeful that recruitment initiatives such as these will help to attract more students to the geosciences in the future.

Another initiative in the recruitment, retention, and development of students is a focus on interdisciplinary studies. One of the most significant barriers to increasing the number of majors is the very rigid disciplinary "box" required by WKU in terms of credit hours, teaching loads, and major allocations. Human-environment issues and problems are not one-dimensional and cannot be addressed by a single discipline, yet this is how Departments and programs are forced to operate. Geoscience faculty have worked closely with the departments of Biology, Agriculture, History, Business, Teacher Education, and AMS to find creative ways to engage students in interdisciplinary approaches to problem-solving. For example, this past year, students and faculty have worked with students and faculty in Biology on GIS-Biology research, and with Public Health on water quality issues. The Department sees GIS and spatial technologies as a central element in building collaborative and cross-disciplinary experiences for students. Quality rather than quantity is the driving ideology behind these initiatives. It is preferable in society to have ten well-trained scientists who can apply a broad interdisciplinary approach to problems rather than one hundred narrowly-trained specialists who (a) cannot find employment or (b) cannot adequately address a problem.

Finally, the Department developed a number of non-traditional courses to address the needs of graduate students and others. A special seminar-based Urban Geography course was offered in the Spring semester for six Communication Department graduate students enrolled in the Leadership Studies Program, along with a special GIS summer course (18 students). A Stormwater Management

course, team-taught by Geography, Public Health, and Business faculty, was offered again in the summer, along with the Center for Cave and Karst Studies summer program (now in its 25th year). The Department also has tried to strengthen its offerings at the extended campuses, especially during the summer semester, and a new full-time instructor for Glasgow began teaching last August to meet growing enrollment demands there. Efforts also continue to improve timely graduation rates, with a “four-year program” guarantee in effect. If the student follows the program guidelines, graduation is possible within the four-year time period, with the Department guaranteeing to offer the courses necessary for that student’s program. A similar initiative is in effect for all graduate students, who are required to meet each semester with the Department Head to go over the degree program and to ensure that all program requirements are met in a timely manner. This past academic year, the Department contacted 14 students who were “at risk” of not completing their degree program, either because of a missing required course or for other reasons. This outreach program is designed to ensure that every major ultimately graduates from the program. This year, three students responded positively and are completing or have already completed their degrees. The Department aims to reduce the delinquency or drop-out rate in the program to less than 5 percent of the total number of majors over the next five years.

Evidence of success in developing the student body is provided by several representative vignettes about program graduates. Last year, Dan Taylor was chosen as the only ESRI scholarship student from Kentucky for the 2003 International GIS conference, following in the footsteps of Rhonda Pfaff, the 2002 awardee who now works fulltime for ESRI. Keith Millam, a geology program graduate now completing a Ph.D. at UT Knoxville, featured prominently in a recent Smithsonian *Air and Space Magazine* article about asteroid impacts in Kentucky. Mark Graham, a GIS specialist and MS program graduate who participated in a recent cave mapping expedition to Hunan, China, has been accepted into the transportation Ph.D. program at UK, and Molly Laird, a geology undergraduate begins graduate study in the Fall at the University of Maine. Other recent graduates have accepted positions with federal and state government agencies, private businesses, and regional organizations.

III. Assuring High-Quality Faculty and Staff

Two new faculty (an environmental geographer and a geology instructor) were hired in August 2003 with expertise in environmental change and geology education respectively, and they have already demonstrated a strong commitment to enhancing the Department’s already excellent reputation in teaching, research, and service. One new faculty member has been recruited for the 2004-2005 academic year (from Buffalo University) to strengthen the Department’s GIS program and to continue building our course offerings in planning and technology. The Department *search committees addressed diversity and gender goals* during the recruitment process, contacting qualified individuals through listservs, conferences, and special mailings, and ultimately recommended the most qualified individual for the position. In the last round of searches, two highly qualified female candidates were offered the a position, but both turned WKU down because of a below-benchmark salary offer, inadequate start-up funds, and poor institutional benefits. The Department has every expectation that the new generation of faculty will continue to strengthen the Department’s accomplishments in scholarship, creative activities, and externally-sponsored research and grants.

During the just-completed academic year, faculty submitted grant and contract applications worth nearly \$1 million, a significant accomplishment. Many of these grants and contracts have been submitted under Ogden College’s ARTP umbrella. Faculty solicited WKU *Action Agenda funds* to support replacement of aging GIS computer facilities, to renew GIS site licenses, to support 22 students on a study abroad course in the Bahamas, and to begin development of the MESONET, an advancement meteorological monitoring, data acquisition, and analytical system. Funds were also obtained internally to upgrade student computers in the meteorology lab and to expand a network of rain gauges and data loggers at Mammoth Cave National Park to record precipitation automatically. External funds generated by the Hoffman Institute, Water Resources Program, Kentucky Climate Center, and the Center for Cave and Karst Studies from agencies such as the NSF, NASA, the Commonwealth of Kentucky, and other sources continue to help support graduate students, student-

centered research, provide new equipment, and facilitate the development of research exchange programs in China, England, and within the Commonwealth.

One of the Department's five geologists, Mike May, won the 2003-2004 Ogden College Award for Public Service, in recognition of his efforts to bring a more scientifically oriented perspective to community development challenges, especially in terms of storm-water management problems. Both Ken Kuehn, a WKU Distinguished Professor, and Mike May took the ASBOG professional geology licensing examination and passed, thus earning the designation of "Professional Geologist" in the state of Kentucky. Another faculty member was nominated for the Ogden College Award in Research and Creativity. Throughout the year, faculty from the Department have been featured in a variety of WKU and local media, including stories in *Echo* magazine, *Western Scholar*, and in the *Bowling Green Daily News*.

Faculty continued to excel in scholarship, research, and professional development, convening and/or participating in myriad professional workshops and presenting approximately 45 papers at local, regional, national, and international conferences. Faculty also were significantly engaged with the local community, serving on committees, task forces, running for public office, participating in WKU-sponsored community outreach events such as the *Far Away Places* series at Barnes and Noble, sharing geoscience expertise on WKYU-FM's Midday Edition program, and giving talks at churches, community organizations, and for service groups. Three faculty also served as editor or co-editor of professional academic journals, eight faculty reviewed manuscripts for academic journals or publishers, and one faculty is a co-author of a chapter in a new textbook titled *Geography in America in the 21st Century*, published by Oxford University Press. Faculty research articles appeared in such diverse outlets as *Applied Geography*, *the International Journal of Climatology*, and the *Journal of Hydrometeorology*, among others. Twelve faculty research articles or book chapters are either currently in review, revision, or awaiting publication, and one of the Department's newest faculty published a chapter titled *The Colorado River Delta of Mexico: Endangered Species Refuge* in the book *WorldMinds: Geographical Perspectives on 100 Problems*.

Faculty also gave about about 80 academic and community talks during the academic year, including presentations at universities and conferences across the United States, in Latin American, China, and Europe. In addition, faculty visited 16 overseas locations for research, professional development, study abroad programs, professional study tours, meetings, and collaborative activities with other institutions (including three trips to China, Guatemala, West Africa, several trips to Europe, and the South Pacific). Six faculty led the Department's study abroad programs to the Bahamas and the United Kingdom respectively, the Department Head served as a Study Tour Lecturer on educational programs co-sponsored by the American Geographical Society to Senegal, Morocco, Spain, and Portugal (March/April), and six faculty led field trips for students within the U.S.

IV. Enhancing Responsiveness to Constituents

The Kentucky State Climatologist serves the public from the Department's Kentucky Climate Center and has provided invaluable service to the community over the past year in many different arenas. Utilizing new GIS visual technologies and drawing on the assistance and skills of five undergraduate and graduate research assistants, the State Climatologist, along with two other faculty, provided climate-related data, expert testimony, prediction models, and other important information to myriad local and state constituents. The Kentucky Climate Center's website provides both real-time and archival weather-related data to visitors and it recorded over 10,000 "hits" during the year. Moreover, the WKU Weather Station hosted several dozen K-12 student visitor groups during the year. The State Climatologist also serves on the South Central Kentucky GIS Users Group and met several times with city and county agents and public officials for GIS and other planning needs. The Department's GIS faculty have taken the lead in helping to coordinate a GIS technology advisory group in the region and in promoting GIS technologies in sustainable development practices. Indeed, the core mission of the Department is to contribute to sustainable development in our community, region, state, and beyond through good management practices.

Public service, as exemplified by the Climate Center, continued to be a central pillar of the Department's contributions, with activities in 2003-2004 reaffirming the faculty's commitment to

productive engagement with a wide variety of constituents. The Department, through the Center for Cave and Karst Studies, continues to pioneer interactive and demonstrative student and public learning activities at the Lost River Cave site. This valuable community resource has flourished over the past year with additional funds from the State, community, Western, and other donors, and it has become one of the premier karst and wetlands educational resources in the region. Dozens of students and community activists are employed or volunteer time at the LRC site, providing learning opportunities for area P-12 schools, visitors, and post-secondary institutions. The Center for Cave and Karst Studies' Director travels the state and surrounding region promoting both the LRC resources and the Department's educational facilities.

Another initiative in enhancing responsiveness to constituents is the ongoing improvement to the Department's website (www.wku.edu/geoweb). This website contains about 650 pages of information relating to the Department's educational, research, and service activities and it receives several hundred visitors each month. The Department regularly updates its site and makes every effort to ensure that all links are active and current. This has involved an investment of over 500 hours during the academic year. Students and other visitors have commented positively about the usefulness of the site's material, especially links to course syllabi, descriptions of all courses offered by the Department, detailed information about the Department's majors and minors, details about each faculty member's research activities, links to faculty websites, links to the Department research centers, online versions of the Department's alumni newsletter, and details of the Department's annual strategic planning.

Faculty have cumulatively contributed thousands of hours to the educational, social, cultural, and economic development needs of the city, county, region, state, and other countries. Mike May received the Ogden College Award for Public Service this academic year, and the GIS faculty serve on a number of regional GIS-related committees and workgroups. Faculty also serve on the city's Storm Water Advisory Committee, and others have been involved in various community projects in advisory capacities. Two faculty members continue to invest many hours in helping students at area K-12 schools develop portfolios in science. These activities also help create contacts and relationships with students and teachers that may convince students to major in the geosciences eventually.

The Department has responded to constituent needs in the area of professional training, including short courses, expert advice, and technological support. Conferences, short courses, and special lectures on radon mitigation, GIS management, hazardous materials handling, storm-water mitigation, karst development, and water quality were offered during the year, with plans to develop more specialized programs in the future, especially in the area of water management, GIS planning, and radon mitigation.

Alumni development is an important source of funding for the Department and it also provides employment opportunities for future students. Many alumni in positions of leadership frequently contact the Department with information about job opportunities for graduating seniors. The Department circulates its annual Geogram newsletter to approximately 1,300 alumni, it hosts alumni and current students at the annual October Homecoming alumni reception, and it offers continuing education training in a variety of fields (Hazmat, Stormwater Mitigation, GIS, Karst Management, etc.). Last year, the Department received record unrestricted contributions from alumni and faculty (over \$8,000), and it hopes to break that record this academic year. Earnings from endowments support student enrollment in field camps, help faculty and students attend more conferences and workshops, and provide significant support to the Department's programs overall.

V. Improving Institutional Effectiveness

The Department continues to run efficiently and effectively. Ad Hoc workgroups are assigned as needed, with a minimum of five faculty serving on the workgroup. Membership on the workgroups is rotated every year to expose faculty to all facets of the Department's operations. The Undergraduate Review workgroup is charged with the task of continually examining and revising the curriculum, course offerings, and program specialties in order to provide the best possible learning experience for the students. A new geology curriculum for 2005-2006 is currently working its way

through the relevant curriculum committees. At the graduate level, the Graduate Review workgroup continues to revise the geoscience-based curriculum designed to meet the demands of 21st century employers and to provide students with the skills necessary to be successful in their Ph.D. studies or in professional careers. Revisions to the successful GIS Certificate program are underway to enhance the Department's GIS offerings. Two workgroups continue to address the physical, technological, and research needs of the Department. The Facilities and Technology workgroup continued to assess the efficient utilization of space, and made several recommendations to upgrade rooms and develop new labs for student research. Renovations to EST 340 should get underway this Fall with funding from WKU's academic quality enhancement initiative. The Research Facilities workgroup, comprising the POD directors and key researchers in the Department, examined research synergies, funding needs, and student research opportunities and made recommendations concerning increased productivity and efficiency in research activities, along with significant collaboration with other academic departments and with external agencies. These recommendations are embedded in the Department's 2004-2005 strategic plan.

The last two workgroups encompass the promotion of the Department's activities and the development of funds. Activities of the Marketing and Promotions workgroup last year included developing a Powerpoint presentation highlighting the strengths of the Department, promoting its educational opportunities among its constituents, and marketing the types of programs and research opportunities available to students and other constituents. Finally, the Funds Development workgroup continued to refine a program to identify sources of external funds, to identify funds to endow a Chair in Geoscience, to develop better relationships with alumni, and to identify creative ways to use available development funds to support student-learning activities.