DIVISION OF NATURAL SCIENCES AND MATHEMATICS
2010-2011 EARTH AND PHYSICAL SCIENCE DEPARTMENTAL REPORT
Compiled by Jeffrey Templeton, Chair, July 29, 2011

I. EXECUTIVE SUMMARY

The Department of Earth and Physical Science consists of two program areas – Earth Science and Physics. The Earth Science program provides a liberal arts core education in geoscience with an emphasis on the scientific method, problem solving, and interdisciplinary science education. A key objective of the program is to prepare undergraduates for careers as professional geoscientists and educators. The Earth Science program also promotes the development of an informed citizenry for wise decision-making on issues related to natural resources, environmental quality, and sustainability in Oregon and beyond. The Physics program fosters a small-group active learning environment in which students explore and discover the laws of physics in a state-of-the-art laboratory. Students develop connections that link fundamental concepts in physics with phenomena covered in their Biology, Chemistry and Earth Science classes. The Physics program provides out-of-classroom experiences in space science and teacher training through membership in the NASA Oregon Space Grant Consortium.

The following is a summary of departmental highlights from the past year.

- Earth and Physical Science faculty members actively served as leaders on a number of campus-wide initiatives including NSM Division Chair in the College of LAS (Taylor), the Academic Excellence Showcase planning committee and the Program for Undergraduate Research Experiences (Templeton), and NSM division representatives to the Collective Bargaining team (Wade and Myers).

- Earth and Physical Science faculty members actively served as professional leaders in their fields. Professional service activities include: member of Oregon Dept. of Education Science Content Assessment panel (Wade), member of review panel for NSF-supported Science Education Resource Center teaching activity collection (Templeton), leadership in state-level geoscience advisory boards (Taylor), participation in NASA Oregon Space Grant Program (Schoenfeld), co-chair Geology section of Oregon Academy of Science (Myers), and collective faculty membership and participation in professional societies (American Association of Physics Teachers, American Geophysical Union, Association of American Geographers, Council on Undergraduate Research, Friends of the Pleistocene, Geological Society of America, International Organization of Palaeobotanists, National Association of Geoscience Teachers, National Science Teachers Association, and Oregon Academy of Science).

- Earth and Physical Science faculty members continue to be actively engaged in a wide spectrum of peer-reviewed research, publication, and related professional development. Dr. Myers prepared a consulting report on the Pliocene floras of the San Joaquin Formation in southern California. Dr. Templeton continued research on tephra geochemistry at Newberry Volcano, Oregon and was PI on an NSF grant proposal to upgrade the ES100 laboratory curriculum at WOU (with Taylor and Wade as Co-PIs). Dr. Taylor continued watershed research in western Oregon and continued work on a NIJ-funded finger print analysis project with Biology colleagues (Dutton, Dutton, Aldrich). Dr. Schoenfeld continued NASA-funded

sabbatical research on children's book content and reading perceptions related to Earth system science. Current (2010-2011) active research grants and pending proposals related to EPS Department faculty total approximately $0.9 M (Refer to Appendix 1. Faculty Reports for additional information.)

- Earth and Physical Science faculty members continue to actively engage high-quality undergraduate teaching, learning, and curriculum development. With 4 tenured faculty and 6 adjunct instructors, the EPS department generated over 8000 student credits hours (SCH) during the 2010-2011 academic year, accounting for 25% of the total production in the Division of Natural Sciences and Mathematics.

- The Earth and Physical Science programs continue to grow in a sustainable manner, in parallel with overall university trends. ES100 LACC enrollments and retention are very strong.

- The 2010-2011 academic year was associated with a notably robust growth in the undergraduate research program in Earth Sciences. A total of 9 students were actively engaged in research with projects funded by NASA Oregon Space Grant, Oregon Watershed Enhancement Board, and the National Institutes of Justice. Research projects focused on geographic information systems, fingerprint analysis, watershed research, river restoration, Newberry geochemistry, igneous petrology, cinder cone analysis and landscape modeling with high resolution Lidar. Students actively engaged the profession and presented their work at the WOU Academic Showcase and the Association of Engineering Geologists spring section meeting in Portland.

II. ENROLLMENT TRENDS

- The Earth Science program has experienced a steady number of graduates (range: 4-8) since 2001 and a stable enrollment in upper division major-minor courses (range: 6-18, average: 11). Earth Science enrollments have been increasing over the past 5 academic years (2006-2011). Total student credit hour production increased 15%, ES100 enrollments 10%, and ES200 enrollments have stabilized at ~40-45 students in fall term. The upper division population is steady, with a consistent range of 7 to 15 students per course. Cumulative growth rate in these areas is around 10% annually, approximately paralleling overall university trends. Ten-year average annual student credit hour production (SCH) in the program is ~8200, second in magnitude to Biology in the division (average annual ~9400 SCH over the same time period). The program is economical and efficient, with the highest annual credit-hour production per faculty-staff member (~400 SCH per faculty-staff) and the lowest salary:SCH ratio in the NSM Division. The program generates $400,000 to $500,000 of net profit, above faculty/staff salary costs, on an annual basis.

- The Earth Science student population is quite diverse in terms of skills, interests, and career goals, ranging from Earth Science majors with focused career objectives to Environmental Studies minors and Integrated Science Education majors. The average annual number of majors and minors in the Earth Science program is 40, with 1400 students tracking through the LACC ES 104-105-106 sequence. Most ES 100 students are in their freshman or

sophomore years, and over 60% list their major as "pre-education". Enrollment in upper-division specialty courses ranges from 8-15, with 25 to 45 in more accessible lower and upper division courses (e.g., ES 201-202-203 Principles of Geology, ES 331 Oceanography, and ES 390 Meteorology).

- Enrollments remain steady in the Physics-200 level service courses with 25 to 30 and 10 to 15 starting out Fall term in the algebra-based (PH201-202-203) and calculus-based (PH211-212-213) sequences, respectively. Fall 2010 enrollment in PH201 was notably high with ~40 students. Improving Physics-sequence retention from Fall to Spring terms is an ongoing concern.

III. SUMMARY OF PROGRAM CURRICULUM CHANGES

No program curriculum changes were undertaken this year.

IV. PROGRAM ASSESSMENT ACTIVITIES AND RESULTS

- The Earth Science program submitted a five-year report to the Oregon University System. Taylor prepared the bulk of this report, with assistance from Templeton in summer 2010.

- The Earth Science program continues to implement a comprehensive evaluation plan that includes the following strategies: (1) formative embedded assessment, (2) summative assessment of the degree program, and (3) survey-based tracking of current students and graduates. The evaluation strategies described below began during the 2008-09 academic year with formative assessment strategies and will continue through 2012 when we plan to conduct our external review of the Earth Science program.

- Formative Embedded Assessment: Formative assessment of the Earth Science Program is currently being conducted via a series of Embedded Assessment Strategies. These strategies specifically link student performance on course activities to program outcomes. A variety of methods and course activities are used for embedded assessment, including inquiry-based lab exercises, field studies, writing assignments (informal short essays and longer-form research papers), active-learning exercises, oral group presentations, and multi-media work samples. These types of embedded assessment strategies have been deployed in all upper-division Earth Science courses taught during spring term.

- Summative Assessment of Degree Program: The capstone course, Senior Seminar (ES 407), continues to serve as the primary Degree Program Assessment mechanism for Earth Science graduates. The objective of Senior Seminar is for students to conduct in-depth study and research on current topics in the Earth Sciences. By requiring Earth Science students to draw on information from the full range of major courses they have completed during their time as an undergraduate, students must demonstrate proficiency in a broad range of Earth Science content areas. Students are required to complete ES 407 during the final term of their senior year and must satisfactorily complete the capstone course to graduate from the program. Senior Seminar has been successfully incorporated into the campus-wide, Academic

Excellence Showcase event sponsored by the Program for Undergraduate Research Experiences and Phi Kappa Phi.

- In conjunction with seminar inquiry-based, work-sample method described above, standardized exit exam models have been explored by Earth Science faculty members. One summative assessment strategy that has been pilot tested is the nationally standardized Fundamental Geology Exam that forms part of the Oregon State Board of Geologist Examiners professional licensing process. Since this initiative began, a total of 6 WOU Earth Science alumni have taken the OSBGE Fundamental Geology (FG) exam and all have met the passing requirements.

SWOT ANALYSIS

a. Strengths *(Key words: capabilities, resources, assets, marketing, innovative aspects, value, quality)*

The strengths of the Earth Science program are summarized as follows:

- The Earth Science program has a faculty:student ratio that is conducive to one-on-one contact, personalized instruction, and promotion of undergraduate research.
- The Earth Science program is one of the campus leaders with respect to service contributions to the Liberal Arts Core Curriculum and pre-education programs. The ES100 sequence (ES 104-105-106) that serves approximately 1400 students per year, is a common first destination for entering freshman, and has a notably high retention rate between fall, winter, and spring terms. ES100 encourages real-world problem solving and is appealing to non-science majors.
- Earth Science faculty members embrace a technology-based curriculum and are working to implement standardized program assessment tools.
- Earth Science faculty members actively serve as leaders on a number of campus-wide committees and serve in a variety of professional capacities.
- Earth Science faculty members are enthusiastically engaged in a wide spectrum of peer-reviewed research, publications, and related professional development.

The strengths of the Physics program are summarized as follows:

- The physics program offers small class size with opportunities for close student-faculty interaction. Upper level students engage in personalized independent studies.
- The physics laboratory represents a state-of-the- art active learning environment.
- Students have opportunities to participate in a wide range of activities through our affiliation with the NASA Oregon Space Grant Consortium.

b. Opportunities *(Key words: market developments, industry trends, nice markets, innovation, partnerships)*

Key opportunities for the Earth Science program include the following:

- Lower-division Earth Science enrollments have been increasing over the past 5 academic years (2006-2011). Total student credit hour production increased by 15% and ES100 enrollments by 10%. The upper-division population remains steady with a consistent

number of degrees awarded. The program is economical and efficient, with a high annual credit-hour production per faculty-staff member (~400 SCH per faculty-staff) and a low salary:SCH ratio. The Earth Science program is profitable.

- A key aspect of the program is the close alliance with faculty in physics, chemistry, biology, and education. Faculty members from different disciplines work directly together on a daily basis and cultivate a multi-disciplinary, collegial atmosphere that is unique compared to other institutions. The cross-disciplinary alliance in NSM provides a superb opportunity for faculty and students with diverse interests to interact in a rich and stimulating academic environment. Earth Science plays an important role by providing a nexus for studies in the biological and physical sciences. In this regard, Earth Science faculty are instrumental in supporting a growing alliance of NSM faculty and programs that provide integrated, interdisciplinary field-based courses and research opportunities in Natural Science disciplines. In addition, there is a common linkage between majors and minors in Earth Science, Geography, and Environmental Studies. As such, a significant number of students share common classes in each of these programs.

Key opportunities for the Physics program include the following:

- The Physics program is actively engaged in K-12 community outreach and improving science teacher training in the State of Oregon. Linkages with NASA-based grants programs provides WOU student scholarships and supports teacher training opportunities with a focus on global climate change in the Earth system. The application of Physics to real-world problems in Earth Science represents an innovative opportunity for cross-collaboration between faculty and students.

c. Challenges *(Key words: market demand, sustainability, obstacles, weaknesses)*

- The most immediate challenge facing the Department of Earth and Physical Science at present is the pressing need for a full-time lab preparator. We currently share a half-time position with the Biology Dept. Growth in both the ES100 and BI100 introductory LACC laboratory science courses has made it challenging for the current staff member to accomplish all of the tasks that could and should be completed. A full-time, dedicated EPS lab preparator would remedy this situation.

Three primary challenges to advancing the Earth Science program at WOU include: (1) over-dependence on adjunct faculty and lack of tenure-line positions, (2) limited faculty time available for scholarly activities, program assessment, and faculty development, and (3) student enrollment and retention.

- The primary challenge facing the Department of Earth and Physical Science is the over-dependence on adjunct faculty and lack of tenure-line positions compared to other departments in the division. The adjunct faculty ratio in Earth Science ranges up to 65%, almost double that of other NSM Division programs. The Earth Science program is currently in need of at least one tenure-track faculty position. Adjunct pay levels, teaching loads, and contract procedures at WOU are such that there is relatively high turnover in these positions, which ultimately destabilizes curricular programs and inhibits long-term development. Institutional stability, continuity, and future growth are dependent upon the stock of tenure-line faculty. Adjuncts represent short term

investments with high turnover rate and curricular instability. Not only do tenure-track faculty members add to the vitality of individual courses and program curricula, they also represent an institutional investment in advanced levels of service, scholarship, and grant writing that is not typically possible for adjunct instructors. The Earth Science program is challenged by this instability.

- An ongoing challenge is also associated with the teaching load required of faculty. The standard teaching assignment requires 12 contact hours per week (36 FTE contact hours per academic year), with lecture hours counting for 1 FTE contact and lab hours counting for 0.66. The teaching load combined with maximum-capacity class sizes results in little time available for other faculty duties such as scholarly research, program planning / assessment, and professional service. As such, the bulk of the latter activities must be conducted after hours, on weekends, and during the summer. An additional challenge presented by the relatively high teaching load is that associated with depletion of creative energy and "teacher burnout".
- Student enrollment and retention is an ongoing challenge at all levels of the University, including the Earth Science program. While Earth Science 100-level course enrollments are increasing, the numbers of majors have been relatively steady, and growth has been slower than expected. The 100-level enrollment trends in large part mirror that of the university as a whole. The most significant challenge to growth of the Earth Science program results from the general lack of geology/Earth Science in the high school curriculum at the state level. In the state of Oregon, K-12 Students are only required to take Earth Science in 8th grade. Geology-related course offerings at the high school level occur sporadically on a district-by-district (teacher to teacher) basis, and are not prominently required in the same way as chemistry, biology, or physics. This deficiency is notable given the prominent role that the geosciences are currently playing in the state and national dialogue about oil and gas resources, energy production, water supplies, sustainability, and global climate change. The lack of an advanced placement (AP) test in Earth Science and absence of an explicit Oregon teaching endorsement are exacerbating factors. The net result is that students receive minimal exposure to Earth Science or Geology in high school, with little understanding of career options or the importance of Earth Science to natural resources issues in the state of Oregon. This deficiency propagates as students enter college, thus stagnating opportunities for freshman enrollment growth.

Physics program challenges include the following:

- The most urgent challenge faced by the physics program is the lack of a second tenure line which limits the ability to offer upper division courses and to plan for programmatic upgrades. The physics program is caught in a classic "Catch-22" predicament. Low enrollment in upper level physics courses ensures departmental and division discussions for future hires go to disciplines other than physics. The lack of a major in physics, and regular upper level course offerings prevent the already small number of interested students from actually choosing physics. Student enrollment numbers in physics courses outside of require engineering coursework across the country have been low for many years now, and is likewise manifested at WOU.
- A high number of weekly student contact hours (typically 15-16) prevents faculty from fully engaging in scholarly and professional activities.

- Another challenge involves entering students who are ill-prepared for the quantitative problem solving demands that a university level physics class thrusts upon them.

d. Vulnerabilities (*Key words: gaps in capabilities, financials, cash flow, supply chain, disadvantages)*

Vulnerabilities for the Earth Science and Physics program are summarized as follows:

- The Earth Science program, along with others in the division, lacks a consistent source of funding for large-scale instrumentation and facility infrastructure. While we have worked diligently to upgrade and support laboratory infrastructure, the Earth Science program still lags behind other science program areas in terms of modern laboratory equipment and resources.
- While the need is clearly documented by staffing and enrollment data, there is a notable lack of institutional commitment to securing a long overdue tenure-line addition of an Earth and Physical Science education specialist, comparable to that recently added to the Biology faculty complement.
- The primary vulnerability for the Physics program is lack of office space, course-load equivalency and adequate long-term funding for a second tenure-line physicist.

V. PROGRAM PLANNING AND INITIATIVES

The Earth Science Program prepared and submitted a 5-year program review to the Oregon University System in August 2010.

VI. OTHER ITEMS

None at this time to discuss.

VII. PUBLIC RELATIONS ITEMS FOR PROGRAM PROMOTION

None at this time to report.

APPENDIX 1. FACULTY AND STUDENT ACCOMPLISHMENTS

Provide bullet line items related to individual faculty and student achievements.

I. FACULTY AND STAFF ROSTER

Tenured Faculty Members

Jeff Myers, PhD, Professor
Bill Schoenfeld, PhD, Associate Professor
Steve Taylor, PhD, Professor
Jeff Templeton, PhD, Associate Professor and Department Chair

Non-Tenure Track Faculty Members

Karen Brown, M.S., Instructor
Don Ellingson, M.S., Instructor
Jeremiah Oxford, M.S., Instructor
Grant Smith, M.S., Instructor
Phillip Wade, M.S., Instructor
KC Walsh, PhD, Assistant Professor

Staff

Julie Grammer, Laboratory Preparator, Biology-Earth Science

II. FACULTY HIGHLIGHTS

a. Teaching

- Jeff Myers: conducted field trips for ES 392 and ES 431/531; GS 202H/202HL was a new preparation and introduced students to the study of climate change and its possible consequences.

- Steve Taylor: conducted field trips in ES322 and ES473 and taught the ES407 Senior Seminar this year with a focus on Newberry Volcano Research.

- Jeff Templeton: conducted weekend field trips for ES 321 and ES 454; for ES 454 (Volcanology), organized a poster session in which 26 students presented the results of their research in a seminar entitled “Global Perspectives on Volcanism” as part of the campus-wide Academic Excellence Showcase event; ES 201 was a Writing Intensive course.

- Philip Wade: GS 325 (Science Inquiry and Engineering Design for K8 Teachers) was a new course, requiring substantial preparation time because of the project oriented nature of the course; GS 203H/203HL class participated in WOU 2011 Academic Excellence Showcase.

b. Scholarship

Reports, Publications, and Peer-reviewed Abstracts:

Myers, JA. Pliocene Floras from the San Joaquin and Tulare Formations, Kettleman City, CA. Prepared for PaleoResource Consultants, F & F GeoResource Associates, Inc. 550 High Street, Suite #108Auburn, CA 95603.

Erwin, D.M., **Myers, J.A.**, Schorn, H.E. 2011. Are there Neogene "lowland" floras preserved near the modern-day crest of the central Sierra Nevada, CA? Botanical Society of America Paleobotany Section, St Louis, MO, July 9-13, 2011 (D.M. Erwin Presenting).

Stanley, R., Dutton, E., **Taylor, S**., Aldrich, P., and Dutton, B., In Review, Geographic Information Systems and Spatial Analysis – Part 1: Quantifying Fingerprint Patterns and Minutiae Distributions: Abstract Submission for American Academy of Forensic Sciences 2012 Meeting.

Dutton, E., **Taylor, S**., Aldrich, P., Dutton, B., and Stanley, R., In Reivew, Geographic Information Systems and Spatial Analysis – Part 2: A Monte Carlo Approach to Estimating Probabilities for Latent Print Identification: Abstract Submission for American Academy of Forensic Sciences 2012 Meeting.

Hidalgo, S., Dutton, B., Stanley, R., Aldrich, P., Dutton, E., and **Taylor, S.,** In Review, A Geometric Morphometric Approach to Fingerprint Analysis: Abstract Submission for American Academy of Forensic Sciences 2012 Meeting.

Dutton, E., **Taylor, S.,** Aldrich, P., Dutton B., 2011, Application of Geographic Information Systems and Spatial Statistics to Determine Probabilities for Latent Print Identifications: Proceedings of the International Association for Identification, Milwaukee.

Dutton, E., Aldrich, P., **Taylor, S.,** Dutton, B., 2010, NIJ Project Status Report - Application of Spatial Statistics to Latent Print Identifications: Proceedings of the Automated Fingerprint Identification Systems (AFIS) 24th Annual Users Conference, Portland, Oregon.

Templeton, Jeffrey H., 2010, Evidence for magma mingling at Newberry Volcano, Oregon: Eos Trans. AGU, American Geophysical Union Fall Meeting, Abstract V43C-2383.

Templeton, Jeffrey H., Winningham, Robert G., Dutton, Bryan E., and Scheck, Stephen H., 2010, PURE@WOU: Developing and implementing the Program for Undergraduate Research Experiences at Western Oregon University: Council on Undergraduate Research National Conference Proceedings.

Wade, P. and Courtney, A., (2010) Learning About Energy Resources Through Student Created Video Documentaries in the University Science Classroom. American Geophysical Union Abstracts (ID# ED31B-0632) for AGU Annual Fall Meeting in SF, CA December, 2011.

Presentations:

Templeton, Jeffrey, Assessing the Earth Science Program at Western Oregon University: Presented at the *Teaching TALKS: Today's Academics Linking Knowledge and Skills* Conference, October 20, 2010, Portland, Oregon.

Becker, Jody, and **Templeton, Jeff,** Textural Analysis of Plagioclase Phenocrysts from Pleistocene ash-flow tuffs at Newberry Volcano, Oregon: Poster presentation at the

Oregon Section of the Association of Environmental and Engineering Geologists Student Research Night, May 10, 2011, Portland, Oregon.

Dana, Kelsii, and **Taylor, S.**, Hydrogeologic Setting of the Monmouth-Independence Area, Polk County, Oregon: Poster presentation at the Oregon Section of the Association of Environmental and Engineering Geologists Student Research Night, May 10, 2011, Portland, Oregon.

Snook, Brandon, and **Taylor, S.,** Geology, Geomorphology and Salmonid Distribution in the Upper Nehalem Watershed, Oregon: Poster presentation at the Oregon Section of the Association of Environmental and Engineering Geologists Student Research Night, May 10, 2011, Portland, Oregon.

Grants and Funding:

Myers, J.A.: WOU Faculty Development Major Research. Description of an Articulated Fruiting Head of Securidaca (Polygalaceae) from the Latest Eocene Badger's Nose Flora of NE California, $2100.00 (resubmitted due to family health-related issues last year)

Taylor, S.B.: National Institutes of Justice: "Use of Geographic Information Systems and Spatial Analysis to Estimate Probabilities for Latent Print Identification: Connecting Research to Forensic Practice" (Co-PI with E. Dutton, P. Aldrich, B. Dutton), $757,411, review pending)

Taylor, S.B.: Oregon Watershed Enhancement Board: "Water Quality Monitoring in the Mid-Willamette Valley" (Co-PI with P. Flatt, Cooperative Agreement with Oregon Dept. of Agriculture and Polk Soil and Water Conservation District, $15,000)

Taylor, S.B., NASA Oregon Space Grant: "Comparative Hydrogeomorphic Analysis of Western Oregon Watersheds Using Airborne Laser Swath Altimetry (LIDAR)" (Co-PI and faculty supervisor for B. Snook, WOU Student, $5000)

Templeton, J.H., **Taylor, S.B., Wade, P.**, Schepige, A.: Improving General Education Outcomes through Learning-for-Use Modules in Introductory Earth Science Courses, National Science Foundation-Transforming Undergraduate STEM Education Program, $118,538, Pending in Review.

Templeton, J.H.: Professional Travel to Conference-Official Capacity (AGU, Fall 2010), WOU Faculty Development Travel Grant, $925.

Templeton, J.H., Professional Travel to Conference-Official Capacity (Teaching Min/Pet/ Geochem in 21st Century, Spring 2011), WOU Faculty Development Travel Grant, $925.

c. Service

Jeff Myers: Senate Honors Committee; WOUFT 2011-2013 Contract Negotiation Team; Ad Hoc Freshman Experience Task Force; Preview Day advisor; Co-chair of Oregon Academy of Science Geology Section; Consulting activities with

Paleoenvironmental Consultants, Altadena, CA, and Paleoresource Consultants, Sacramento, CA..

Steve Taylor: Chair, Division of Natural Sciences and Mathematics; Chair, Oregon State Board of Geologist Examiners; member of the NSM Division Personnel Review Committee; ad-hoc "New Science Building" Committee, Budget Committee, and Building Committee; Preview Day and SOAR advisor; Member of the Oregon Geographic Information Council; Member of the Association of State Boards of Geology Council of Examiners; Chair of the Geological Society of America Academic and Applied Geoscience Relations Committee.

Jeff Templeton: Chair of the Earth and Physical Science Department; primary Department scheduler and budget manager; member of the NSM Division Personnel Review Committee, ad-hoc "New Science Building" Committee, Budget Committee, and Building Committee; Preview Day and SOAR advisor; member of Executive Committee for the WOU Program for Undergraduate Research Experiences; Council on Undergraduate Research National Conference in June 2010; member of the WOU Academic Excellence Showcase Planning Committee; Served on the Igneous Rocks and Processes Review Panel for the NSF-supported Science Education Resource Center (SERC) teaching activity collection; Invited member of the Inter-institutional Faculty Panel at the Teaching TALKS: Today's Academics Linking Knowledge and Skills Conference, sponsored by the Oregon University System, October 20-22, 2010, Portland, Oregon.

Philip Wade: Member 2010-2011 WOUFT Collective Bargaining Team representing Non Tenure Track faculty; Oregon Department of Education Science Content Assessment Panel Member. Participated in numerous workshops and on-line assessment activities; Education Board Member: A. C. Gilbert Discovery Village Science Museum, Salem OR; Session chair for 2011 Academic Excellence Showcase.

III. STUDENT ACHIEVEMENTS

- 2010-11 Academic Year Student Recognition Awards: Kelsii Dana, Outstanding Upper-division Student in Earth Science; Jody Becker and Brandon Snook, Outstanding Graduating Seniors in Earth Science.
- 36 Earth Science students participated in the 2010 WOU Academic Showcase, authoring both scientific posters and oral presentations.
- Brandon Snook continued NASA Oregon Space Grant supported research on watersheds in western Oregon.
- Kelsii Dana continued work on a $45,000, two-year undergraduate research fellowship to study nitrates and groundwater quality in the mid-Willamette Valley.
- Alumna Heather Hintz continues working as a seasonal park ranger at Oregon Caves National Monument.

- Thomas VanNice, a 2010 graduate, has obtained employment with Oregon Dept. of Fish and Wildlife working in watershed restoration.
- Alumna Jamie Fisher was recently hired by Resolution Copper Mining in Arizona to work at a project geologist.
- Matt Buche, 2009 graduate obtained employment as a field geologist for Kane Geotechnical in Fresno, CA.

See annual faculty reports attached on the following pages.

Appendix 1. 2010-2011 Annual Faculty Reports

Natural Science & Mathematics 2010-2011
Annual Faculty Activity Report

Due Date: June 16, 2011 *Attach a current copy of your CV and send electronic copies as email attachments to Steve Taylor, taylors@wou.edu and cc to your department chair.*

Name: Jeff Myers **Report Date:** 6/1/2011

Title/Rank: 3rd yr Full Professor **Years in Rank: 12 at WOU**

Initial Hire Date at WOU: 9/1999 **Years of Service: 12 at WOU, 1 prior to WOU w/PhD**

I. TEACHING AND CURRICULUM

A. Course Census
(List the courses that you have taught this year and corresponding enrollment data by term.)

FTE/course shown in ( )

Fall:
ES 431/531 – Paleobiology (4), 8 students (8 UG)
ES 331 – Introduction to Oceanography (3), 28 students
ES 106L – Earth System Science III (1.5) – 24 students
ES 106L – Earth System Science III (1.5) – 24 students
ES 106L – Earth System Science III (1.5) – 24 students

Winter:
ES 105 – Earth System Science II (3) – 59 students
GS 202H – Honors General Science II (3) – 15 students
GS 202HL – Honors General Science II Lab (2) – 15 Students
ES 453/553 – Geology of the Pacific Northwest (4) – 15 students (1 grad, 14 UG)

Spring:
ES 104 – Earth System Science I (3) - 59 students
ES 203/203L – Historical Geology (5) – 23 students
ES 392 – Sedimentary Geology (4) – 5 students

Total FTE: 35.5

Sum total: 1 graduate student, 297 UG students
Productivity: Average 25 students/class; 298 seats filled/348 seats available = 85.6% seats filled

B. Course Development and Improvement
(Indicate any courses that were new preparations, significantly revised preparations, and anything significant about your efforts in these courses. Describe new techniques, materials, or technologies that were incorporated into your classroom teaching. Include any field trips or extended learning activities that took place outside of the classroom.)

- ES 392: Day field trip to examine the Elkton/Coaledo sequence at Sunset Bay and Cape Arago, Oregon, to develop proficiency in field observation and geological problem solving.
- ES 431/531: Three day field trip to central Oregon to examine paleoenvironments and fossil life of the middle Eocene Clarno and John Day Formations, and to introduce students to career opportunities in paleontology-related fields.
- GS 202H/202HL: New prep. The winter quarter Honors seminar introduced students to the study of climate change and its possible consequences. The focus was to: a) derive, apply, and discuss the methods and data used by scientists examining climate of the past; b) examine and discuss interpretations derived from these data; c) place these interpretations into the context of modern issues of concern. Weekly student evaluations indicate that the course was quite successful the first time out. With this background I will address several identified concerns, the foremost of which is the unavailability of lab space to conduct the lab portion of the class.

C. Program Assessment Activities
(Provide a bulleted summary of assessment activities that you have been involved within the past year, e.g. embedded assessments, exit exams, assessment planning, assessment-based curriculum changes, related professional development, etc.)

- Completion of standard, uniform syllabi using the Cal State University, Monterey Bay, model which includes learning objectives with measurable outcomes. All of my syllabi divide course content into "learning blocks" that address one or more aspects of the program and university missions and aspirations. Each block is tied to a set of homework and assessment tools to measure the effectiveness of each course component.

D. Curriculum Changes
(Provide a bulleted summary of curriculum changes that you were involved within the past year.)

II. RESEARCH & SCHOLARSHIP

A. Research Projects
(Provide a bulleted summary of research projects you have worked on this year. Indicate any student involvement or collaborations in these projects.)

Consulting Report: Myers, JA. Pliocene Floras from the San Joaquin and Tulare Formations, Kettleman City, CA. Prepared for PaleoResource Consultants, F & F GeoResource Associates, Inc. 550 High Street, Suite #108Auburn, CA 95603

B. Peer-Reviewed Publications

C. Presentations and Refereed Abstracts

Erwin, D.M., Myers, J.A., Schorn, H.E. 2011. Are there Neogene "lowland" floras preserved near the modern-day crest of the central Sierra Nevada, CA? Botanical Society of America Paleobotany Section, St Louis, MO, July 9-13, 2011. (D.M. Erwin Presenting)

In light of ongoing debate about the uplift history of the Sierra Nevada, a question remains concerning whether or not several Neogene floras preserved near today's crest represent "lowland" forests that grew at <915 m (3000 ft.) elevation. The Mt. Reba and Elephants Back (EB) assemblages sit above treeline at >2637m (8650 ft.) leaving one to indeed wonder about the

landscape and climate in which they grew. As currently described, the Mt. Reba includes cypress (*Cupressus)*, Douglas fir (*Pseudotsuga*), two evergreen oaks (*Quercus*, *Lithocarpus*), two pines (*Pinus*), fir (*Abies*), giant sequoia (*Sequoiadendron*), and juniper (*Juniperus*). Using the "similar living species" method paleoelevation estimates were between ~762 to 915 m (~2500 - 3000 ft.) suggesting a post-7 Ma uplift of ~1829 m (6000 ft.). Similarly, the Lower (~16 Ma?) and Upper EB (~7 Ma) floras described as mixed broad-leaved evergreen and deciduous hardwood forest with no conifers implied growth at ~762 to 915 m (~2500 - 3000 ft.) elevation. From our floristic analysis of the Mt. Reba plants we estimate a MAT of 8-9°C (not 13.3°C) and elevation of at least 1524m (5000 ft.), if not higher, given the relatively warmer and wetter late Miocene climate. With respect to the EB floras, the age and stratigraphic position of the Lower assemblage, in particular, is problematic. The Upper EB has three taxa: *Lyonothamnus, Nerium,* and several cf. *Quercus alba*-type leaves. Only the oak is identifiable to genus. The Lower EB includes deciduous hardwoods (e.g., *Populus, Salix, Juglans, Ulmus, Quercus, Platanus*) and evergreen shrubs that are not exclusively low elevation taxa, but conifers are absent. If the Lower EB flora is ~16 Ma based on new geologic mapping and radioisotopic dates, floral analysis must take into account growth during the Mid-Miocene Climatic Optimum, a time of elevated global temperatures, increased precipitation and humidity that would allow forest growth at elevations >915 m (3000 ft.).

D. Grant Writing Activities
(Include proposal title, authors, funding source, amount, and status on funding request.)

2011 WOU Faculty Development Major Research. Description of an Articulated Fruiting Head of Securidaca (Polygalaceae) from the Latest Eocene Badger's Nose Flora of NE California, $2100.00 (resubmitted due to family health-related issues last year)

E. Professional Certifications, Licenses, Other Specialty Credentials

III. FACULTY SERVICE

A. Student Advising
(Provide a bulleted list of activities related to academic advising, number of advisees, programs in which you advise, etc.)

- My advising load this year consists of: Seven Earth Science majors (ES majors are divided equally among the Earth Science faculty); five Integrated Science Majors; 7 EC/E and E/M education majors.

B. WOU Institutional Service
(Provide a bulleted list of department-division-university service duties that you have carried out, e.g., scheduling, recruiting activities, student clubs, search committees, faculty senate, mentoring, etc.)

a. Senate Honors Committee: 2008-present
b. WOUFT 2011-2013 Contract Negotiation Team
c. Ad Hoc Freshman Experience Task Force
d. 2 Preview day activities

C. Leadership, Professional Service and Community Outreach
(List professional service completed this past year, include consulting activities and leadership roles.)

- Co-chair of Oregon Academy of Science Geology Section with Scott Burns (PSU)
- Consulting activities with Paleoenvironmental Consultants, Altadena, CA, and Paleoresource Consultants, Sacramento, CA.

D. Professional Societies
(List memberships in professional organizations.)

- Oregon Academy of Science –President 2007-2009; Co-Chair, Geology Section, 2007-present.
- Paleontological Society of America, Cordilleran Section (Chair, 2002-2003)
- International Organization of Palaeobotanists, 1996-present
- Great Basin Institute (Co-Director), 1994-present
- Botanical Society of America, Paleobotanical Section, 1999-present
- Native Plant Society of Oregon
- Santa Barbara Botanic Garden
- Geological Society of America 1996-present

IV. HONORS AND AWARDS
(Provide a bulleted list of honors and awards that you received in the past academic year.)

V. CHALLENGES AND PLANS FOR PROFESSIONAL GROWTH
(Provide a bulleted list of challenges and barriers to achievement in your role as a faculty member at WOU. Also list any plans for professional growth and/or mitigation of challenges.)

- No challenges. I hope to develop methods to more fully incorporate quantifiable measures of learning success into courses and coursework through continued collaboration with colleagues at institutions with large investment and success at measuring student success.
- In the coming several years I hope to have the chance to thoroughly weed through lecture and lab material in order to update them and to incorporate teaching strategies that, based on my experience, better fit the changing WOU student demographic and skill set.

VI. MISCELLANEOUS (Provide a bulleted list of any other items not covered above.)

VII. PUBLIC RELATIONS AND PROMOTIONAL HIGHLIGHTS
(From your above summary, list the highlights of your faculty scholarship, student scholarship and service-related activities that you would like to see prominently promoted on the university web site, in news media, campus brochures, newsletters, and other public-relations materials. Provide a short blurb for each item with any recommendations on how you would like news of your work disseminated.)

Natural Science & Mathematics 2010-2011
Annual Faculty Activity Report

Due Date: June 16, 2010 *Attach a current copy of your CV and send electronic copies as email attachments to Steve Taylor, taylors@wou.edu*

Name: Steve Taylor **Report Date:** July 15, 2011

Title/Rank: Professor of Geology **Years in Rank:** year 2 in progress
Initial Hire Date at WOU: September 15, 1999 **Years of Service:** 12

I. TEACHING AND CURRICULUM

A. Course Census

(List the courses that you have taught this year and corresponding enrollment data by term.)

Term	Course No.	Course Name/Section	Cr. Hr/ FTE	No. Students
Fall 2010	ES322	Geomorphology	4.0	11
Winter 2011	ES202	Physical Geology Lec/Lab	4.3	32
Winter 2011	ES341	Fundamentals of GIS	4.0	25
Spring 2011	ES473/573	Environmental Geology	4.0	18
Spring 2011	ES302	Quantitative Methods	2.3	14
Spring 2011	ES407	Senior Seminar	1.0	5
Summer 2011	ES408-508	River Environments	3.0	14

*** Note: 20010-2011 Taylor was on 0.5 FTE course load release to serve as NSM Division Chair*

B. Course Development and Improvement

(Indicate any courses that were new preparations, significantly revised preparations, and anything significant about your efforts in these courses. Describe new techniques, materials, or technologies that were incorporated into your classroom teaching. Include any field trips or extended learning activities that took place outside of the classroom.)

Course Development

Fall 2010-Spring 2011	Continued development of multi-media and online resources for a spectrum of Earth Science courses including ES104, ES106, ES202, ES473, ES341, and ES407
Winter 2011	Continued transfer of all pre-existing WebCT course materials (ES202, ES104, ES106, ES407) to the Moodle online course management environment.
Winter 2011	Continued development of real time audience response systems (“clickers”) for use in ES202 Principles of Geology.
Spring 2011	Compiled and organized materials for focus project on Newberry Volcano as part of ES407 Senior Seminar

Field Trips

Summer 2010	Trip leader: “Hydrology and Geomorphology of the Middle Deschutes and Lower Columbia Rivers”. Field trip in conjunction with ES408/508 River Environments.

Fall 2010	Trip leader: ES322 Geomorphology Neotectonics of the Coos Bay Area, in conjunction with Dr. Templeton.
Spring 2011	Trip leader: "Student Night at the Association of Engineering and Environmental Geologists Pacific Northwest Region; Portland State University". Field trip in conjunction with ES473/573 Environmental Geology
Spring 2011	Trip leader: "Solid Waste Management and Hydrogeology at the Coffin Butte Landfill, Benton County, Oregon". Field trip in conjunction with ES473/573 Environmental Geology.
Spring 2011	Trip leader: "Hydrogeology and Environmental Geology of the Monmouth-Independence Area, Polk County, Oregon". Field trip in conjunction with ES473 Environmental Geology.

C. Program Assessment Activities
(Provide a bulleted summary of assessment activities that you have been involved within the past year, e.g. embedded assessments, exit exams, assessment planning, assessment-based curriculum changes, related professional development, etc.)

Fall 2010	Updated ES program demographic and alumni data.
Fall 2010-Spring 2011	Continued embedded assessment activities in ES322, ES341, ES302, ES407 and ES473. Instruments included laboratory portfolios ("work samples"), embedded exam questions directly linked to the ES program mission, and research-based student poster presentations.

D. Curriculum Changes
(Provide a bulleted summary of curriculum changes that you were involved within the past year.)

No significant program curriculum changes this year.

II. RESEARCH & SCHOLARSHIP

A. Research Projects
(Provide a bulleted summary of research projects you have worked on this year. Indicate any student involvement or collaborations in these projects.)

Fall 2010-Spring 2011	Research Project: "Comparative Hydrogeomorphic Analysis of Western Oregon Watersheds Using Airborne Laser Swath Altimetry (LIDAR)" (with undergraduate student B. Snook)
Fall 2010-Spring 2011	Research Project: "GIS Analysis and Results from Rapid Bio-Assessment (RBA) and Limited Factors Analysis (LFA) in the Upper Nehalem Watershed, Tillamook County, Oregon" (with undergraduate students B. Snook, W. Vreeland, A. Leet)
Fall 2010-Spring 2011	Research Project: "The Distribution and Occurrence of Nitrate in Groundwater Supplies of the Mid-Willamette Valley: Implications for Water Resource Management in the Monmouth-Independence Area, Oregon" (with undergraduate student K. Dana)
Fall 2010-Spring 2011	Ongoing compilation of research literature and reference library related to watershed analysis, regional geomorphology, hillslope / fluvial processes.
Fall 2010-Spring 2011	Continued funded research project entitled "Application of Spatial Statistics to Latent Print Identifications: Towards Improved Forensic Science Methodologies" (Co-PI with E. Dutton and project team P. Aldrich, B. Dutton).

Spring 2011 Advanced ongoing research project: "Cinder Cone Analysis at Newberry Volcano" (with Dr. Templeton and students of ES407 Senior Seminar)

B. Peer-Reviewed Publications

In Review Manuscript submission: The Occurrence of Small-Scale Debris Fans in Sandstone Landscapes of the Central Appalachians: Case-Study Supplement to accompany the "Key Concepts in Geomorphology" textbook by P. Bierman and D. Montgomery, W.H. Freeman Publisher.

In Review Manuscript submission: Volcanic History and Cinder Cone Erosion at Newberry Volcano, Oregon: Case-Study Supplement to accompany the "Key Concepts in Geomorphology" textbook by P. Bierman and D. Montgomery, W.H. Freeman Publisher.

C. Presentations and Refereed Abstracts

Summer 2010 Dutton, E., Aldrich, P., Taylor, S.B., Dutton, B., 2010, NIJ Project Status Report – Application of Spatial Statistics to Latent Print Identifications: Proceedings of the Automated Fingerprint Identification Systems (AFIS) 24th Annual Users Conference, Portland, Oregon.

Winter 2010 Taylor, S., Dutton, B., Stanley, R., 2010, Invasive Plant Distribution and Land-Cover Change in the Luckiamute River Basin, Central Oregon Coast Range, American Association of Geographers.

Summer 2011 Dutton, E., Taylor, S., Aldrich, P., Dutton B., 2011, Application of Geographic Information Systems and Spatial Statistics to Determine Probabilities for Latent Print Identifications: Proceedings of the International Association for Identification, Milwaukee.

Summer 2011 Dutton, E., Taylor, S., Aldrich, P., Dutton, B., and Stanley, R., In Reivew, Geographic Information Systems and Spatial Analysis – Part 2: A Monte Carlo Approach to Estimating Probabilities for Latent Print Identification: Abstract Submission for American Academy of Forensic Sciences 2012 Meeting.

Summer 2011 Hidalgo, S., Dutton, B., Stanley, R., Aldrich, P., Dutton, E., and Taylor, S., In Review, A Geometric Morphometric Approach to Fingerprint Analysis: Abstract Submission for American Academy of Forensic Sciences 2012 Meeting.

D. Grant Writing Activities

(Include proposal title, authors, funding source, amount, and status on funding request.)

Fall 2011 Oregon Watershed Enhancement Board: "Water Quality Monitoring in the Mid-Willamette Valley" (Co-PI with P. Flatt, Cooperative Agreement with Oregon Dept. of Agriculture and Polk Soil and Water Conservation District, $15,000)

Spring 2011 National Science Foundation Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES) Program: "Improving General Education Outcomes through Learning-for-Use Modules in Introductory Earth Science Courses" (Co-PI with J. Templeton, P. Wade, $118,541, review pending)

Spring 2011 National Institutes of Justice: "Use of Geographic Information Systems and Spatial Analysis to Estimate Probabilities for Latent Print Identification: Connecting Research to Forensic Practice" (Co-PI with E. Dutton, P. Aldrich, B. Dutton), $757,411, review pending)

E. Professional Certifications, Licenses, Other Specialty Credentials

Maintained active registration as a Professional Geologist in the State of Oregon (Registration Number G1968), State Board of Geologist Examiners, Salem, Oregon.

III. FACULTY SERVICE

A. Student Advising

(Provide a bulleted list of activities related to academic advising, number of advisees, programs in which you advise, etc.)

Continued as faculty advisor in Environmental Studies and Earth Science programs (10 ES students, 2 Environmental Studies students). Awarded 2010 Faculty Advisor of the Year, Western Oregon University.

C. WOU Institutional Service

(Provide a bulleted list of department-division-university service duties that you have carried out, e.g., scheduling, recruiting activities, student clubs, search committees, faculty senate, mentoring, etc.)

(1) Lead Facility on Proposal for Construction of New Science Annex at WOU
(2) Member of NSM Personnel Review Committee at WOU
(3) Chair of NSM Technology Planning Committee at WOU
(4) Member of the NSM Building Infrastructure Planning Committee at WOU

(5) Continued as ESRI GIS licensing liaison for WOU. Part of this work includes ongoing implementation of a central GIS server for use by both the colleges of Education and LAS.

(6) Served as one of the Earth and Physical Science faculty representatives at Preview Days and SOAR at WOU.

(7) Informally worked on career placement for Earth Science-related graduates from WOU (maintain a job board and placement contacts for students in government and industry); developed a comprehensive advising and career guide for Earth Science majors.

(8) Continued soliciting funds and campus-wide services to further develop the Geo-Data Processing Lab in NS218A. The Geolab has received greater use the past year by Earth Science students and faculty for research and teaching activities.

(9) Served as ad-hoc administrator of the WOU Earth Science program web site and related public relations activities.

(10) Served as session chair and active faculty participant in the 2010 WOU Academic Showcase (comprising part of the new "PURE" initiative, Program for Undergraduate Research Experiences).

C. Leadership, Professional Service and Community Outreach

(List professional service completed this past year, include consulting activities and leadership roles.)

(1) Division Chair of Natural Sciences and Mathematics, Western Oregon University. The wide array of duties in this position include: budget management (~$250,000 supplies and services), personnel supervision (~50 faculty and staff), class scheduling, liaison with upper administration, student grievances, signatory duties on division paperwork, strategic planning, tenure and promotion work, building management.

(2) Continued serving as faculty advisor and university liaison to the Oregon Geographic Information Council, Salem Oregon. The function of the organization is to set standards for acquisition of Geographic Information Systems data in the state of Oregon.

(3) Continued duties as a board member and chair of the Oregon State Board of Geologist Examiners (OSBGE), Salem Oregon. The function of the organization is to set licensing standards for professional geologists in the state of Oregon. The wide array of duties in this position include: budget management (~$250,000 supplies and services), personnel supervision (~2 staff), liaison with state legislature and Oregon Dept. of Justice, and strategic planning.

(4) Continued serving as member of the national exam committee and council of examiners, Association of State Boards of Geology, Columbia, South Carolina. The function of the organization is to establish national testing standards for professional geology registration throughout the U.S.

(5) Continued serving as faculty advisor and university liaison to the State Geologic Map Advisory Committee, Oregon Dept. of Geology and Mineral Industries, Portland, Oregon. The function of the committee is to provide guidance and set priorities for state and federal geologic mapping initiatives in Oregon.

(6) Continued serving as university liaison for the Luckiamute Watershed Council, Monmouth, Oregon.

(7) Serving as participating scientist and faculty mentor in the Summer Ecosystem Informatics Institute at Oregon State University and HJ Andrews Experimental Forest. The six-week program involves 15 graduate and undergraduate students from institutions around the country. I worked in collaboration with Desiree Tullos and Julia Jones (OSU) to lead a river geology/rafting trip on the Deschutes River.

(8) Organized and sponsored Winter 2011 Natural Science Seminar Series: "Applications of Geographic Information Systems in Academia and Government"

D. Professional Societies
(List memberships in professional organizations.)

Maintained active membership in the following professional organizations: Geological Society of America, American Geophysical Union, Association of American Geographers, Friends of the Pleistocene.

IV. HONORS AND AWARDS
(Provide a bulleted list of honors and awards that you received in the past academic year.)

2011 Recognition of Achievement in Grantsmanship, Western Oregon University

V. CHALLENGES AND PLANS FOR PROFESSIONAL GROWTH
(Provide a bulleted list of challenges and barriers to achievement in your role as a faculty member at WOU. Also list any plans for professional growth and/or mitigation of challenges.)

(1) The anomalously high adjunct/tenure line faculty ratio (60%) in the Dept. of Earth and Physical Science is a major barrier to program development. Our perennial request for an Earth / Physical Science Education Specialist was denied by admin. Given that our department has only 4 tenured faculty members out of a total of 10 faculty, we are chronically hindered by lack of horsepower to contribute to departmental service tasks and development/assessment activities. As a result, only a couple faculty members are able and motivated to take on the service/reporting chores for the department. It's tiring and demoralizing to watch other better-staffed departments in the division advance, while we are hindered by a lack of tenure-line work horses who are committed to the long term mission of the institution.

(2) There is a chronic lack of time for scholarship outside of teaching and service. My research moves along at a slow pace, with the use of student assistants, but finding the time and space to

publish manuscripts is very limiting to professional advancement. This is a chronic problem at WOU.

(3) Increasing administrative demands for assessment reports: faculty workload is increasing with persistent calls for assessment data by upper administration, however there has been little to no investment in FTE, professional development, or faculty support services to help manage the growing expectations for administrative reporting.

(4) Teaching load reduction associated with Division Chair duties has resulted in removing me from the ES100 teaching rotation. ES100 is one of our most important program activities and benefits from the diverse participation of all faculty. My reduction in ES100 service load is a deficiency and weakens our program position during the interim while serving as NSM Chair.

VI. MISCELLANEOUS (Provide a bulleted list of any other items not covered above.)

(1) Maintained an employment / internship bulletin board for Earth Science students.
(2) Participated in the year-end Natural Science and Mathematics Awards Ceremonies.
(3) Participated in WOU commencement ceremonies.
(4) Continued alumni relations to provide seed money for the newly formulated Western Foundation, Earth Science Academic Advancement Fund.

VII. PUBLIC RELATIONS AND PROMOTIONAL HIGHLIGHTS
(From your above summary, list the highlights of your faculty scholarship, student scholarship and service-related activities that you would like to see prominently promoted on the university web site, in news media, campus brochures, newsletters, and other public-relations materials. Provide a short blurb for each item with any recommendations on how you would like news of your work disseminated.)

The best promotional nugget for this year is the growing undergraduate research program in Earth Sciences sponsored by the efforts of Templeton and Taylor. A total of 9 students were actively engaged in research during the 2010-2011 academic year with projects funded by Oregon Space Grant, Oregon Watershed Enhancement Board, and the National Institutes of Justice. Students actively engaged the profession and presented their work at the WOU Academic Showcase and the Association of Engineering Geologists spring section meeting in Portland. Student-related research projects involve geographic information systems, fingerprint analysis, watershed research, river restoration, geochemistry and igneous petrology.

Natural Science & Mathematics 2010-2011
Annual Faculty Activity Report

Name: Dr. Jeffrey Templeton
Report Date: June 22, 2011
Title/Rank: Associate Professor of Geology
Years in Rank: 8 years
Initial Hire Date at WOU: January 1995
Years of Service: 16+ years

I. TEACHING AND CURRICULUM

A. Course Census

List the courses that you have taught this year and corresponding enrollment data by term.

Fall Term 2010: ENROLLMENT

- ES 201W – Principles of Geology lecture .....40 students
- ES 201L – Principles of Geology labs (2 sections).....18+22 students
- ES 301 – GeoTechniques: Petrographic Microscopy .....15 students
- ES 321 – Structural Geology .....10 students
- 0.25 FTE reassignment for EPS Department Chair

Winter Term 2011:

- ES 104 – Earth System Science I lecture.....60 students
- ES 450 – Introduction to Petrology .....13 students
- 0.25 FTE reassignment for EPS Department Chair

Spring Term 2011:

- ES 106 – Earth System Science III lecture .....54 students
- ES 454 – Volcanology .....26 students
- 0.25 FTE reassignment for EPS Department Chair

B. Course Development and Improvement

Indicate any courses that were new preparations, significantly revised preparations, and anything significant about your efforts in these courses. Describe new techniques, materials, or technologies that were incorporated into your classroom teaching. Include any field trips or extended learning activities that took place outside of the classroom.

- ES 201, taught during Fall term 2010, was a Writing Intensive course.
- During Fall term, I conducted a three-day field trip to Sunset Bay/Cape Arago and the Roseburg area for Structural Geology (ES 321).

- During Winter term in the Petrology course (ES 450), I continued to fine-tune the "Thin Section Problem Solving" assignments, which are a series of active-learning strategies that require students to use petrographic microscopy techniques to solve geologic problems. I will be presenting a poster on this strategy at the *Teaching Mineralogy, Petrology, and Geochemistry in the 21st Century* Conference in August 2011.
- For the Volcanology course (ES 454) in spring term, I organized a poster session in which 26 students presented the results of their research in a seminar entitled "Global Perspectives on Volcanism" as part of the campus-wide Academic Excellence Showcase event.
- During Spring term, I conducted a two-day field trip to the central Oregon Cascades and High Lava Plains near Bend for ES 454 (Volcanology).
- For ES 104 and ES 106 taught during Winter and Spring terms, respectively, I continued to align the course content with the Conceptual Physical Science textbook that was recently adopted.

C. Program Assessment Activities

Provide a bulleted summary of assessment activities that you have been involved within the past year, e.g. embedded assessments, exit exams, assessment planning, assessment-based curriculum changes, related professional development, etc.

- In Spring term 2011, I conducted two Embedded Assessment strategies for ES 454, Volcanology. These strategies are specifically aligned with the learning outcomes for the Earth Science Major and related Minors.
- In October, 2010, I attended and actively participated in the OUS-organized *Teaching TALKS: Today's Academics Linking Knowledge and Skills* Conference, which provided a venue for faculty members and administrators to share ideas and discuss assessment of learning outcomes.
- Assisted with the preparation of "OUS Five-Year Follow-up Review of a New Academic Program" for the Earth Science Major during summer 2010.

D. Curriculum Changes

Provide a bulleted summary of curriculum changes that you were involved within the past year.

None undertaken this past year.

II. RESEARCH & SCHOLARSHIP

A. Research Projects

Provide a bulleted summary of research projects you have worked on this year. Indicate any student involvement or collaborations in these projects.

- I continued to work on two research initiatives at Newberry Volcano near Bend. Key outcomes from the past academic year are summarized in the following paragraphs.
  1. The objective of the first project is to constrain the petrogenetic evolution of the Newberry magma system using the Pleistocene ash-flow tuff deposits. Following a highly productive sabbatical, I continued making significant headway on this project in the past year and also engaged two undergraduates in independent research projects as a direct result of my sabbatical research. Most notably, as part of my sabbatical research, I conducted a geochemical study of glass and minerals in pumices from the Newberry tuffs via electon microprobe analyses at Oregon State University. In December 2010, I presented this new geochemical data and results from this work at the American Geophysical Union meeting in San Francisco, CA and published an abstract in the Proceedings for this meeting. Also, I mentored two undergraduates this past academic year on aspects of this research project. One student (Kevin Friscia, BS Earth Science, 2011) compiled the field volcanological data into a GIS as part of an independent study project. A second student (Jody Becker, BS Earth Science, 2011) conducted a detailed study of textural and compositional attributes of plagioclase phenocrysts within pumices from the tuff of Tepee Draw using microprobe data and photomicrographs collected during my sabbatical. She presented the results of this project at the Oregon Section of the AEG Student Research Night, where she was awarded the top Undergraduate Research Project. Finally, I intend to complete a manuscript on the petrology of the Pleistocene ash-flow tuffs at Newberry by Fall 2011.

  2. The second research project focuses on the numerous cinder cones that punctuate the landscape at Newberry Volcano. This project has entailed the development of a digital geologic map and spatial database for the volcano. I am collaborating with Dr. Steve Taylor on this project, and we have actively involved students in collecting digital map data using GIS software and analyses. For the upcoming summer, I will be mentoring an incoming Earth Science undergraduate who is part of the NSF-funded Increasing Diversity in Earth Sciences (IDES) program run through Oregon State Univ. She will most likely continue aspects of this project

over the next two years. This project is ripe for publication, and Taylor and I need to find the time to prepare a manuscript, hopefully in the next 1-2 years.

- I have continued to work on disseminating the results of a curriculum improvement project that was funded through the National Science Foundation. For this project, I have developed a pedagogical model that integrates geologic problem solving with petrographic microscopy and digital image analysis in two courses in the Earth Science major at WOU. I have been invited to present this teaching strategy at the *Teaching Mineralogy, Petrology, and Geochemistry in the 21st Century* Conference in August 2011. I also plan on submitting the curriculum development materials to the SERC website and will prepare a manuscript for the *Journal of Geoscience Education*.

- In June, 2010, I presented a poster at the Council on Undergraduate Research National Conference focusing on the development of the Program for Undergraduate Research Experiences (PURE) at Western Oregon University. This presentation was a continuation of the collaborative efforts between me and several colleagues (Rob Winningham, Bryan Dutton, and Steve Scheck) to disseminate the work we have been conducting to develop an institutional framework for supporting undergraduate research at WOU.

- I continued to work on a long-term geoscience education project that focusing on developing inquiry-based laboratory curriculum for the introductory LACC Earth System Science (ES 100) courses at Western Oregon University. To this end, in May 2011, I was lead author on a proposal that was submitted to the National Science Foundation – Transforming Undergraduate STEM Education Program. The proposal, entitled "Improving General Education Outcomes through Learning-for-Use Modules in Introductory Earth Science Courses", is a collaborative venture between the Earth Science Program and the College of Education at WOU. Collaborators include Steve Taylor, Philip Wade, and Adele Schepige.

B. **Peer-Reviewed Publications**

C. Presentations and Refereed Abstracts

Refereed Abstracts:

Templeton, Jeffrey H., 2010, Evidence for magma mingling at Newberry Volcano, Oregon: Eos Trans. AGU, American Geophysical Union Fall Meeting, Abstract V43C-2383.

Templeton, Jeffrey H., Winningham, Robert G., Dutton, Bryan E., and Scheck, Stephen H., 2010, PURE@WOU: Developing and implementing the Program for Undergraduate Research Experiences at Western Oregon University: Council on Undergraduate Research National Conference Proceedings.

Invited Presentation:

Templeton, Jeffrey, Assessing the Earth Science Program at Western Oregon University: Presented at the *Teaching TALKS: Today's Academics Linking Knowledge and Skills* Conference, October 20, 2010, Portland, Oregon.

Co-authored Student Presentation:

Becker, Jody, and **Templeton, Jeff,** Textural Analysis of Plagioclase Phenocrysts from Pleistocene ash-flow tuffs at Newberry Volcano, Oregon: Poster presentation at the Oregon Section of the Association of Environmental and Engineering Geologists Student Research Night, May 10, 2011, Portland, Oregon.

D. Grant Writing Activities

Include proposal title, authors, funding source, amount, and status on funding request.

Title	Authors	Funding Source	Amount	Status
Improving General Education Outcomes through Learning-for-Use Modules in Introductory Earth Science Courses	Jeffrey Templeton, Stephen Taylor, Philip Wade, Adele Schepige	National Science Foundation – Transforming Undergraduate STEM Education Program	$118,538	Pending in Review
Professional Travel to Conference – Official Capacity (AGU, Fall 2010**)**	Jeffrey Templeton	WOU Faculty Development Travel Grant	$925	Yes
Professional Travel to Conference – Official Capacity (Teaching Min/Pet/ Geochem in 21st Century, Spring 2011**)**	Jeffrey Templeton	WOU Faculty Development Travel Grant	$925	Yes

III. FACULTY SERVICE

A. Student Advising

Provide a bulleted list of activities related to academic advising, number of advisees, programs in which you advise, etc.

- Adviser for Earth Science majors (12 advisees).
- Adviser for Earth Resources, Earth System Science, and Geology minors (~8 minor advisees).

B. WOU Institutional Service

Provide a bulleted list of department-division-university service duties that you have carried out, e.g., scheduling, recruiting activities, student clubs, search committees, faculty senate, mentoring, etc.

Departmental/Program service duties

- Continued actively serving as **Chair of the Earth and Physical Science Department**.
- Responsible for all scheduling, staffing, and related tasks for the Earth System Science sequence (ES 104, 105, and 106) lecture and lab courses, lower- and upper-division Earth Science courses, and Physics lecture and lab courses.
- Managed the departmental budget, which was over $45,000 this year.
- Supervised the Earth System Science lab preparator.
- Ordered equipment and materials for Earth System Science and Geology courses.

Divisional service duties

- Member of the **Division of Natural Science and Mathematics Personnel Review Committee**.
- Served on the ad-hoc **"New Science Building" Committee**.
- Worked with department heads of Biology, Chemistry, and Math to distribute Division Travel funds.
- Member of the **Division of Natural Science and Mathematics Budget Committee** and **Building Committee**.
- Represented the Earth Science program at two **Academic Fair/Preview Days** (October 30, 2010 and January 22. 2011). Prepared display for prospective students.
- Represented the Earth Science program at the **Spring Majors Fair** (April 7, 2011).
- **SOAR** (June 24, 2011 and one other day tbd). Assist incoming students in the Earth and Physical Science Department with scheduling.

University-wide service

- Continued serving as an active member of the Executive Committee for the **Program for Undergraduate Research Experiences** at WOU. Represented WOU at the Council on Undergraduate Research National Conference in June 2010.
- Continued serving as an active member of the **Academic Excellence Showcase Planning Committee**. Designed new academic discipline signage for campus-wide display at various venues on day of Showcase.
- Other notable campus-wide service activities included the following: Attended commencement (June 11, 2011).

C. Leadership, Professional Service and Community Outreach

List professional service completed this past year, include consulting activities and leadership roles.

- Serving on the **Igneous Rocks and Processes Review Panel** for the NSF-supported Science Education Resource Center (SERC) teaching activity collection. Completed thorough reviews of five mineralogy, petrology and geochemistry learning activities that are part of the SERC *On the Cutting Edge* collection.
- Served as an invited member of the **Inter-institutional Faculty Panel** at the *Teaching TALKS: Today's Academics Linking Knowledge and Skills* Conference, sponsored by the Oregon University System, October 20-22, 2010, Portland, Oregon.
- Served as **Curriculum Liaison** for a Category 1 Proposal for a new BS in Earth Science degree submitted by Oregon State Univ. Dept. of Geoscience to OUS.
- Attended and presented at the American Geophysical Union meeting in San Francisco, CA in December, 2010.
- Attended and presented at the Council on Undergraduate Research National Conference in June, 2010.
- Continued to serve as WOU's **Campus Representative** for the Geological Society of America.

D. Professional Societies

List memberships in professional organizations.

- **Member**, Geological Society of America (GSA); American Geophysical Union (AGU); National Association of Geoscience Teachers (NAGT); Council on Undergraduate Research (CUR).

V. CHALLENGES AND PLANS FOR PROFESSIONAL GROWTH

Provide a bulleted list of challenges and barriers to achievement in your role as a faculty member at WOU. Also list any plans for professional growth and/or mitigation of challenges.

Challenges and Barriers:

- The Earth and Physical Science Department would be better served by having a dedicated ¾ to full time lab preparator, as opposed to the current ½ and ½ split between Biology.
- The Earth and Physical Science Department has a critical need for at least one additional tenure-track faculty position, preferably in the area of Earth and Physical Science Education.

Plans for Professional Growth:

- I completed a two-term sabbatical during the 2009-10 academic year. This time away from day-to-day teaching and service obligations enabled me to work on several of my long-standing research and scholarship objectives. Over the course of the past academic year, I have continued my efforts towards achieving these goals, which include the following: (1) to continue a research project focusing on the petrology and volcanology of Pleistocene ash-flow tuffs exposed at Newberry Volcano in central Oregon, culminating in the submission of a manuscript, (2) to obtain external funding through the National Science Foundation to improve the introductory Earth System Science laboratory curriculum at WOU; and (3) to continue to disseminate the results of a undergraduate geoscience curriculum project that was funded through NSF via the SERC website and to submit a manuscript to the *Journal of Geoscience Education*.

VII. PUBLIC RELATIONS AND PROMOTIONAL HIGHLIGHTS

From your above summary, list the highlights of your faculty scholarship, student scholarship and service-related activities that you would like to see prominently promoted on the university web site, in news media, campus brochures, newsletters, and other public-relations materials. Provide a short blurb for each item with any recommendations on how you would like news of your work disseminated.

- The volcanology and petrology research initiatives at Newberry Volcano might be interesting from a Public Relations and Promotional standpoint.
- The new curriculum / pedagogical model for teaching petrology that I have developed is pretty cool.
- The high degree of participation by the Earth Science program in the Academic Excellence Showcase should also be noted.

Natural Science & Mathematics 2010-2011
Annual Faculty Activity Report

Due Date: June 17, 2011 *Attach a current copy of your CV and send electronic copies as email attachments to Steve Taylor, taylors@wou.edu*

Name: Philip Wade **Report Date:** June 17, 2011

Title/Rank: NTT Instructor **Years in Rank:** 13
Initial Hire Date at WOU: 9-16-1998 **Years of Service:** 13

I. TEACHING AND CURRICULUM

A. Course Census

Summer 2010

ES 106 (enrollment – 24)

ES 106L (enrollment – 24)

ES 104 (enrollment – 24)

ES 10L (enrollment – 24)

GS313W (enrollment –10)

Fall 2010

GS 313W (enrollment – 18) Writing intensive course. Major revisions to align with new 2009 Oregon Dept. of Education Core Science Standards.

GS 312- (enrollment – 13)

Major revisions to align with new 2009 Oregon Dept. of Education Core Science Standards.

ES 104L (enrollment – 23)

ES 104L (enrollment – 26)

Winter 2011

ES 104L (enrollment – 25)

ES 104L (enrollment – 25)

GS 313W (enrollment – 23) Writing intensive course.

GS 312- (enrollment – 8)

Spring 2011

GS 313W (enrollment – 9) Writing intensive course.

GS 325- (enrollment – 23) New course: "Science Inquiry and Engineering Design for K8 Teachers." Substantial preparation time involved with project oriented course. Student projects included a 3-week engineering design project and a scientific inquiry project. Class MOODLE site constructed. Initiated with COE Professor Adele Schepige a formal research project (Engineering Design: Constructing Ideas for Teachers and Students) on student learning using IRB approved research design.

ES 104L (enrollment – 22) Overload to cover colleague out on FML.

ES 104L (enrollment – 23) Overload to cover colleague out on FML.

ES 106L (enrollment – 23)
GS 203H-and GS 203HL (enrollment – 18) (co-taught with Arlene Courtney) (Honors Science – Alternative Energy) "Essentially" New Course with substantial preparation. Enhanced GS 203H Moodle Site for course. Used on-line assignments and in-class labs. Major prep time for class Video Documentary Projects (9-documentaries) that were presented at AES, 2011. Class participated in WOU Academic Excellence Showcase. Renewed formal research project on student learning using IRB approved research design.

B. Course Development and Improvement

GS 325- (enrollment – 23) New course: "Science Inquiry and Engineering Design for K8 Teachers." Substantial preparation time involved with project oriented course.

- Student projects included a 3-week engineering design project and a 3-week scientific inquiry project.
- Students were required to develop and teach two science lessons.
- Class MOODLE site constructed.
- Initiated with COE Professor Adele Schepige a formal research project (Engineering Design: Constructing Ideas for Teachers and Students) on student learning of both engineering design and scientific inquiry content using IRB approved research design.
- Submitted abstract (Engineering Design: Constructing Ideas for Teachers and Students) to NSTA Seattle 2011 conference on STEM education (acceptance notices due to be sent out by June 30, 2011).

GS 313W and GS312

- Revisions to curriculum in response to 2009 adopted Oregon Dept. of Education Core Science Standards.

GS 203H-and GS 203HL

- Project-based course with substantial preparation. Enhanced GS 203H Moodle Site for course. Used on-line assignments and in-class labs. Introduced new web-based content modules on energy resources (Fossil Fuels).
- Introduced students to network available research tools (e.g. Wiki).
- Major prep time for class Video Projects that were presented at AES, 2011.
- Developed (in-progress) ~100 minute DVD consisting of 9 student projects.
- Class participated in WOU 2011 Academic Excellence Showcase.

C. Program Assessment Activities

- Embedded assessment for **GS 325** consisting of Engineering Design Project evaluation using ODE Engineering Design Work-Sample criteria, 2-student created teaching lessons evaluated, and required students to conduct an "authentic" science project based on ODE Inquiry Science Work-Sample criteria. Used 2 exams as content assessment vehicles.
- Embedded assessment for **GS 312 and GS 313W** consisting of Thematic Unit Project, 2-Teaching lesson developed and taught, and required students to conduct an "authentic" science project based on ODE Inquiry Science Work-Sample. Used 2 exams as content assessment vehicles.
- Embedded assessment for **GS 203H** included on-line discussion questions, in-class laboratory activities, video project presented at AES, 2010 and exams as content assessment vehicles. Students required to use internet research tool (Wiki) to share information.

- Renewed formal IRB approved research project (Using Student Created Video Documentaries in Science Class).
- Initiated with COE Professor Adele Schepige a formal research project (Engineering Design: Constructing Ideas for Teachers and Students) on student learning of both engineering design and scientific inquiry content using IRB approved research design.
- Submitted abstract (Engineering Design: Constructing Ideas for Teachers and Students) to NSTA Seattle 2011 conference on STEM education (acceptance notices due to be sent out by June 30, 2011).

D. Curriculum Changes

GS 325 -New curriculum for new course. See comments above.

II. RESEARCH & SCHOLARSHIP

A. Research Projects

- GccIFT: Global Climate Change Institute for Teachers Workshops: (June 22-24, 2011) (~20 K-8 teacher participants). Participated in developing workshop curriculum and conducting workshops.
- **Using Student Created Video Documentaries in Science Class**. IRB approved research project renewed to assess GS 203H course learning outcomes. Initial results (see below under presentations) presented at American Geophysical Union Annual Fall Meeting in SF, CA December, 2011.
- **Engineering Design: Constructing Ideas for Teachers and Students.** IRB approved research project initiated with COE Professor Adele Schepige to assess GS 325 course learning outcomes and to address a longitudinal (3-year) study to assess pre-service K8 teachers conceptions of engineering design and scientific inquiry. Abstract submitted to December 2011, NSTA Seattle Conference on STEM education. (notices of acceptance due to be sent by June 30, 2011)

B. Peer-Reviewed Publications

- None

C. Presentations and Refereed Abstracts

- Wade, P. and Courtney, A., (2010) **Learning About Energy Resources Through Student Created Video Documentaries in the University Science Classroom.** American Geophysical Union Abstracts (ID# ED31B-0632) for AGU Annual Fall Meeting in SF, CA December, 2011.

D. Grant Writing Activities

- **Improving General Education Outcomes through Learning-for-Use modules in Introductory Earth Science Courses. $**125,000.00 NSF TUES proposal submitted May 27, 2011 with PI Jeff Templeton, co-PI Steve Taylor, co-PI Adele Schepige, and co-PI Philip Wade.

E. Professional Certifications, Licenses, Other Specialty Credentials

- California single subject credential physical science, (1989)
- California supplemental credential mathematics, (1989)

III. FACULTY SERVICE

A. Student Advising

- Continued College of Education student evaluations for admittance into K8 licensure program.

B. WOU Institutional Service

- Member 2010-2011 WOUFT Collective Bargaining Team representing Non Tenure Track faculty.

C. Leadership, Professional Service and Community Outreach

- Oregon Department of Education Science Content Assessment Panel Member. Participated in numerous workshops and on-line assessment activities.
- Education Board Member: A. C. Gilbert Discovery Village Science Museum, Salem OR
- Session chair for 2011 Academic Excellence Showcase.

D. Professional Societies

- National Science Teachers Association
- American Geophysical Union

IV. HONORS AND AWARDS

- None

V. CHALLENGES AND PLANS FOR PROFESSIONAL GROWTH

VI. MISCELLANEOUS (God Help Us All)

VII. PUBLIC RELATIONS AND PROMOTIONAL HIGHLIGHTS

Natural Science & Mathematics 2010-2011

Annual Faculty Activity Report

Name:Donald E. Ellingson **Report Date: 15 Jun 2011**

Title/Rank: Adjunct Instructor Years in Rank: 13 years

Initial Hire Date at WOU: Jan 1998 **Years of Service: 13 years**

Plus 2 years as a GTA in the late 1980s

I. TEACHING AND CURRICULUM

A. Course Census

Fall 2010 -- 161 students

ES 106 Earth System Science III, two lectures, 114 students -- 6 classroom hrs/wk

ES 106L Earth System Science III Lab, two labs, 47 students -- 4 classroom hrs/wk

Winter 2011 -- 149 students

ES 390 Meteorology, 14 students -- 3 classroom hrs/wk

ES 104 Earth System Science I, one lecture, 62 students -- 3 classroom hrs/wk

ES 104L Earth System Science I Lab, three labs, 73 students -- 6 classroom hrs/wk

Spring 2011 -- 137 students

GS 351 Astronomy: 9 students -- 3 classroom hrs/wk

ES 106 Earth System Science III, one lecture, 58 students -- 3 classroom hrs/wk

ES 106L Earth System Science III Lab, three labs, 70 students -- 6 classroom hrs/wk

B. Course Development and Improvement

I was assigned GS 351 at the last minute and developed the course as the term progressed. It worked well, as demonstrated by outstanding student presentations and excellent performance on the Final Exam -- over half the class scored 90% or better on the Final!

C. Program Assessment Activities

My assessment activities include

-- Lecture Final Exam

-- Lecture Midterm Exam

-- Lecture Assignments

-- Lecture and Lab Quizzes

-- Lab: discussions with students . . . watching, and listening to, students work

-- Lab: review of weekly lab reports

-- On a daily basis: updating lesson plans addressing weaknesses identified by the above activities

-- On a term to term basis: adjusting syllabus outline and reading material based on past student strengths and weaknesses and on current issues of interest, e.g. global warming, economic uncertainty.

Student performance over the past 10 years seems to be stagnant or declining, both in lecture and lab (with the notable exception of this year's Astronomy class -- we did great in it). The main cause appears to be reading deficiencies. If I present a concept three or more times in class the class does great on exam questions based on the concept, but if I present it only once and rely on student reading to reinforce the concept, test results are disappointing. Math is also a big stumbling block for many students.

II. RESEARCH & SCHOLARSHIP

A. Research Projects

I continue to love what I teach and teach what I love. Global Warming is a very serious issue . . . and so is Cascade volcano eruptions, and Cascadia Subduction Zone earthquakes.

Is there life elsewhere in the universe, and if so could there be intelligent life, and could we communicate with it?

I'm constantly studying these and other issues, with emphasis on the Global Warming. Sea level is rising!

E. Professional Certifications, Licenses, Other Specialty Credentials

I have an Oregon Certificate to teach math, physics, chemistry, integrated science, and social science, at the 5-12 level.

I'm a certified USAF Air Training Command Instructor

I'm a retired USAF Weather Officer . . . most of my work was in East Asia and West Europe (and I was in Afghanistan before the Soviets attacked).

I'm a certified weather forecaster for locations in Japan, Southeast Asia, England, and Germany.

I managed (commanded) USAF weather offices in England and Germany during the Cold War.

I was a US-Canadian Planning Group representative on the NATO Military Committee for Weather Plans and Operations, again during the Cold War (which we won without having to go into battle to do so).

Natural Science & Mathematics 2010-2011
Annual Faculty Activity Report

Due Date: June 17, 2011 *Attach a current copy of your CV and send electronic copies as email attachments to Steve Taylor, taylors@wou.edu and cc to your department chair.*

Name: Grant D. Smith **Report Date:** 6/17/2011

Title/Rank: Adjunct Instructor **Years in Rank:** **3**
Initial Hire Date at WOU: December, 2007 **Years of Service:** **3**

I. TEACHING AND CURRICULUM

A. Course Census

ES 104 Lecture – Fall 2010 – 59 Students Enrolled
ES 104 Lab – Fall 2010 – 3 sections – 69 students total
ES105 Lecture – Winter 2011 – 58 Students Enrolled
ES105 Lab – Winter 2011 – 4 sections – 97 students total
ES106 Lecture – Spring 2011 – 53 Students enrolled
ES106 Lab – Spring 2011 – 99 students total

B. Course Development and Improvement

The ES 105 lecture and lab sections were new for me this year and required significant preparation to review concepts and prepare the lectures for students. Whereas many of my lectures have previously been primarily PowerPoint lectures, I concentrated on adding "board examples" of problem solving for my ES104, ES105, and ES106 lecture sections. This was particularly needed in ES105 where many of the problems are physics calculations. Due to the success of using "Lecture Tutorials" (after Smay and Kortz) in my ES104 lecture section, I developed similar worksheets for use in both my ES105 and ES106 lecture sections. The lecture tutorials also serve as a formative assessment tool and are, thus, included in the next section.

I was appointed to the position of Earth Science Lab coordinator for the fall term. One of the primary duties was making sure the lab manuals were prepared for the campus bookstore and submitted with sufficient time for printing before the term. I also worked with the lab preparator to identify needed materials, any problems with the lab setup, and to serve as a liaison between the other lab instructors and the preparator. When I initially assumed the position, it was indicated that the instructors and department head were weary of changes to the lab manual. For this reason, I initially limited my edits to typographical and formatting errors. As the year went along, however, it became clear that I was expected to make some changes to the manual. At the department head's suggestion, I initially investigated some of the experiment manuals that came with the Pasco data sampling units. Unfortunately, most of the published experiments were for chemistry and physics and did not lend themselves to incorporation into our existing earth science labs. I then changed my focus to identifying some of the most problematic labs in the ES104-ES106 sequence. Upon discussion with other instructors, I settled on trying to make modifications to the third lab of ES104 (Light), which had proven to be problematic for both instructors and students. A draft version of that lab was submitted and approved near the end of the spring term.

C. Program Assessment Activities
I included formative assessment of student progress through lecture exams, lecture tutorials, and quizzes in the class. These were designed to assess student progress according to the goals of ES104, 105, and 106. These assessments were not, however, used to assess the program in general.

D. Curriculum Changes
It is my understanding that adjunct instructors are not to be involved with curriculum changes.

II. RESEARCH & SCHOLARSHIP

A. Research Projects
I have continued to work on my Phd dissertation to develop an instrument for understanding the self efficacy of interpretive rangers. This is of interest because the public often learns some earth science by attending an interpretive ranger talk. I made contacts with over 50 National Park Service locales and collected my data during the Fall through Spring terms. In total, I got 364 respondents. Statistical analyses of the results began near the end of the Spring term.

B. Peer-Reviewed Publications
n/a

C. Presentations and Refereed Abstracts
n/a

D. Grant Writing Activities
n/a

E. Professional Certifications, Licenses, Other Specialty Credentials
Certified Interpretive Guide – National Association of Interpretation

III. FACULTY SERVICE

A. Student Advising
Adjunct instructors are not part of student advising.

D. WOU Institutional Service
n/a

C. Leadership, Professional Service and Community Outreach
n/a

D. Professional Societies
Geologic Society of America
National Association of Geoscience Teachers
National Association for Interpretation
American Education Association

IV. HONORS AND AWARDS
n/a

V. CHALLENGES AND PLANS FOR PROFESSIONAL GROWTH
I plan to learn how to use the electronic clicker system in the lecture halls. My lectures have been designed around the use of such input, but I have used flash cards in the past. I intend to finish my PhD dissertation in Science Education during the fall term. In addition to professional growth, it will also allow me the time to concentrate more on assessing and making changes to my ES100 level courses.

VI. MISCELLANEOUS

VII. PUBLIC RELATIONS AND PROMOTIONAL HIGHLIGHTS
Grant D. Smith is working with the National Park Service to develop a tool for understanding a ranger's perceptions of their own efficacy and how that is related to positive visitor experiences at our National Parks, Memorials, and other locales. He has served as an adjunct instructor for the WOU introductory earth science courses for three years.