Buffalo State College
Individual *Faculty* Information Sheet

Time Frame for Review: July 1, 2006 – June 30, 2007
(Due to Department Chair or Director by June 13, 2007)

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Department: Earth Sciences and Science Education
Date: 06/06/2007

Section I - Summarize your professional activities and accomplishments for the past year.

A. Teaching Effectiveness (include summary of student, peer, and other evaluations; changes in courses that strengthen the classroom experience and student learning)

This year I taught Environmental Geochemistry (GES 350), Forensic Geoscience (GES 360/GES 513) and Applied Environmental Field Methods (GES 460). The results of the student course evaluations show advancement over last year, with the majority of the scores for the undergraduates at or higher than the ES/SE average. The lowest scores are for the graduate cross-listed section of Forensic Geoscience (GES 513), which I believe is due to the differing expectations that some of them had regarding the content and structure of the course (i.e. expecting it to be a lecture course when it is not). Next year I will meet separately with each of the graduate students to clarify their expectations and to verify that this course will be right for them.

Questionnaire	ESSE	GES 350	GES 360	GES 460	GES 513
13. Available outside of class	3.27	3.86	3.30	3.73	3.67
14. Showed enthusiasm	3.71	3.86	3.80	3.73	3.67
15. Prepared for class	3.60	3.86	3.60	3.55	3.33
16. Clear & understandable presentations	3.46	3.57	3.30	3.55	2.33
17. Present alternative examples	3.56	3.86	3.40	3.64	3.33
18. Communicated course expectations	3.42	3.71	3.60	3.73	3.00
19. Responsive to questions	3.60	3.86	3.60	3.73	3.33
20. Concern for students development	3.52	3.71	3.50	3.73	3.00
21. Would recommend course to others	3.36	3.71	3.40	3.73	3.00
22. Exams reflected course content	3.38	4.00	3.80	3.55	3.67
23. Grading clearly explain and unbiased	3.43	4.00	3.90	3.55	2.33
24. Homework meaningful	3.44	4.00	3.40	3.82	2.67
Average of the above categories	**3.48**	**3.83**	**3.55**	**3.67**	**3.11**

The written comments are also very favorable – this comment from Environmental Geochemistry GES 350 in particular I found interesting "I walked into this class with a very strong dislike of chemistry. Any other chem class I have taken I have not done well in, but for some reason this class worked for me. I am very surprised by how [much] chem I was able to pick up, and am also glad that I took this course before entering grad school."

In the Environmental Geochemistry class I added three new in-class laboratory projects to help re-enforce the material being presented and it appears to have greatly helped the students. I plan to add a forth project for next year. The Applied Environmental Methods class went on a new field trip to a defunct landfill to learn some groundwater sampling techniques. We also had a boat trip planned out of

the Great Lakes Center, but it had to be cancelled because there was still too much ice for the boats to go out safely. Instead we did some surface water collection in Delaware Park.

I sponsored several student posters at the Student Research and Creativity Celebration this year:

- Adam Hovey, Joy Stoddard and Brandon Wojcik – *Differentiating Sediments in the Buffalo River Watershed From the Headwaters to the Mouth*
- Matt Cutolo and Richard Venator – *Glass is Everywhere*
- Jill Arno, Ken Haulton, Kris Kinn - *Salinity of Streams in Western New York*
- Katie Bonk, Jessica Gorom, Frank Metz and Jacob Hodgson – *A Comparison of the Water Quality in Erie, Genesee, and Niagara Counties*
- Joseph Gould, Thomas Bohlen and William Burghardt – *Quantification and Classifying Diatom Populations in Urban and Suburban Waters*
- Thomas Nelson and Joshua Kraft – *Soil Analysis for Possible Heavy Metals in Public Play Areas*
- Crystal Gerovac – *Techniques for X-ray Diffraction Microanalysis*

I am also working with several students over the summer on a variety of projects that are for the most part continuations of work started in the Spring Semester. Robert Klinshaw is working with Greg Smith in Art Conservation and with me to analyze lazurite samples from around the world. Crystal Georvac is analyzing western New York soils for heavy metals distribution. Tom McCarthy is collecting water quality data in Delaware Park.

I also did guest lectures or presentations for the following five courses:

- CHE 403 Instrumental Analysis (2 sections) - Alex Nazarenko
- CNS 610, CNS 612, CNS 616 Conservation Science I, II, IV - Aaron Shugar
- PHY 518 Waves and Optics - Michael DeMarco

B. Scholarship, Research, and Creative Activity (cite works published, professional presentations, performances and exhibitions, grants awarded; describe professional development activities)

I spent the Fall semester on a Nuala McGann Drescher Affirmative Action/Diveristy Leave and spend the time working on a few different projects. Primarily, I was developing protocols and collecting data on the interaction of organic contaminants with clay minerals. This is a long-term study of the structural changes in the fabric of clays exposed to non-polar contaminants in a variety of chemical environments. During the leave, I submitted a grant proposal based on this research to the National Science Foundation, which unfortunately was not funded. This work is ongoing.

I have two publications currently in press. The first is "Bergslien, E.T. and J.C. Fountain (2007) Examining the utility of epoxy replicas of single, natural fractures in dolostone for visualization experiments, *Hydrogeology Journal*" and reflects three years of effort, re-running some experiments and reinterpreting data. It is nice to finally get this work in print. The second paper in press is "Bergslien, E.T., Bush M. A. and Bush, P.J. (2007) Identification of cremains using x-ray diffraction spectroscopy and a comparison to trace element analysis, *Forensic Science International*."

Four abstracts on which I am an author or co-author were accepted for presentation at the Geological Society of America Annual Meeting to be held in October and I have been working for months on putting together a special Public Forum on Forensic Geoscience also to be held at the GSA Annual.

Publications this past year -

Bergslien, E.T. and J.C. Fountain (2006) The effect of changes in wettability on two-phase saturated flow in horizontal replicas of single natural fractures, Journal of Contaminant Hydrology, 88(3-4), 153-180.

Bush, P.J., Bergslien, E.T. and Bush, M.J. (2007) Commentary on: Elemental Analysis of Human Cremains Using ICP-OES to Classify Legitimate and Contaminated Cremains. J Forensic Sci 2006; 51(5): 967-73. Journal of Forensic Science, 52(3), 742, doi:10.1111/j.1556-4029.2007.00447.

Manuscripts Submitted for Review

Bergslien, E.T. In Situ Application of Field Portable X-ray Fluorescence (FPXRF) Spectrometry for a Playground Analysis - Preliminary Findings. to *Science of the Total Environment.*

Works in Progress

Bergslien, E.T. and J. Kelly. Characterization of changes in the composition of an urban soil in a line perpendicular to an expressway. for submission to *Applied Geochemistry*.

Bergslien, E.T., R. Miller, P. Bush and W. Engelbrecht. Characterization of an anomalous "lead tooth" from the Iroquoian Eaton Site. for submission to *The Bulletin: Journal of the New York State Archaeological Association.*

Bergslien, E.T. (under contract) Forensic Geoscience. Blackwell Publishing. (An introductory textbook for college level courses on forensic geoscience.)

Invited Presentations

Bergslien, E.T., P. Bush & M. Bush. (2006) *Application of Field Portable X-ray Fluorescence (FPXRF) Spectrometry in Forensic and Environmental Geology*. December 20th, 2006, Geoscientists at Crime Scenes, Geological Society of London.

Bergslien, E.T. (2006) *Rocks, Soil and Bones: Characterization of Geologic Trace Evidence*. November 2nd, 2006, Edinboro University, guest of Sigma Gamma Epsilon and the EUP Geosciences Department.

Academic Presentations

Bergslien, E.T. (2006) XRD and cremated human remains: what is in this urn anyhow?, *GSA Abstracts with Programs, 38(7). Geological Society of America Annual Meeting in Philadelphia*

C. Service to the College, Community, Profession

College Service:

- Served as Associate Chair of the Research Council and on the Strategic Planning Sub-committee.
- Member of the college Radiation Safety Committee.
- Serve as one of the School of Natural and Social Sciences representatives on the College Senate and am on the College Academic Plan Committee.
- Am a member of the Undergraduate Committee in the Earth Science & Science Education Department, plus I am the departmental Safety Officer and an Instructional Review Board Representative.
- Active member of the Women in Science and Mathematics committee which received a 2007 Award for the Promotion of Respect for Diversity and Individual Difference for our lecture series.

Work with Students:

- I am an active student advisor, with an official list of several advisees, plus several other students who visit for suggestions regarding their course selection. I also advised several students this year at the Transfer and First-Year Student Orientations and did so over the summer as well.

Community Service:

- I am performing local analysis of the Delaware Park area to assist in a larger effort to track pollutants in the Buffalo area.
- I am still serving as a consultant to Gary A. Abraham, Esq., of the Concerned Citizens of Cattaraugus County, Inc. on the Farmersville Landfill issue. I have preformed some analysis of the geological and hydrogeologic issues associated with the proposed sitting of the landfill.

Professional Service:

- Session co-chair at the Geological Society of America Annual Meeting, 2006; will chair a session at the 2007 meeting and will be moderating a public forum on Forensic Geoscience.
- Member in good standing of the Geological Society of America, the American Geophysical Union, and the National Ground Water Association.
- I was invited to become a reviewer for the Journal of Forensic Science and have reviewed two articles this year.