Appendix A

Undergraduate Teaching in the Geosciences: Faculty Survey

Survey developed and conducted by the NAGT On the Cutting Edge Program, administered by the American Institute of Physics, with funding from the National Science Foundation Division of Undergraduate Education (DUE 0127310).

Your responses to the survey are confidential. The data you provide will be published in aggregate form. The survey results will be used to help us improve our program so we can better serve the community, as part of the program evaluation, and as a basis for publications and presentations about geoscience education.

YOUR BACKGROUND

1. What is the highest degree level that you have completed?
   - Masters
   - PhD or doctorate
   - Other, please specify: 

2. What was the year of your highest degree?

3. How many years have you taught at the college or university level? 
   Do not include any experience as a teaching assistant

4. Which of the following best describes your disciplinary focus?
   - Geology or Geophysics
Oceanography or Marine Science
Atmospheric Science or Meteorology
Other, please specify: [ ]

5. Which of the following best describes your current position?

- Full professor
- Associate professor
- Assistant professor
- Instructor or Lecturer
- Adjunct or Visiting professor
- Other, please specify: [ ]

6. Are you a department chair or head?

- Yes
- No

7. Please indicate the number of each of the following courses you taught during spring 2003 and fall 2003. If you taught a two-term course or the same course for consecutive terms, please count each term separately.

- Introductory courses
- Courses for majors
- Graduate-level courses
Undergraduate Teaching in the Geosciences: Faculty Survey Continued

8. Which of the following best describes the introductory courses that you taught during spring 2003 and fall 2003? Please enter the number of courses taught.

- [ ] Earth Science
- [ ] Earth System Science
- [ ] Environmental Geology
- [ ] Historical Geology
- [ ] Meteorology
- [ ] Oceanography
- [ ] Physical Geology
- [ ] Other courses

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INTRODUCTORY COURSE

9. What is the name of the most recent introductory course that you taught?

[ ]

10. How many students were in that course?

[ ]
11. Does your class have a separate associated laboratory section?
   ☐ Yes
   ☐ No

12. Does your class have a separate associated discussion section?
   ☐ Yes
   ☐ No

13. In the "lecture portion" of your introductory course, please estimate the percentage of class-time spent on student activities, questions, and discussion.
   ☐ %

14. In the "lecture portion", please indicate how frequently you used the following teaching strategies in teaching your most recent introductory course. Please use a scale from 1 to 5, where 1 is "never" and 5 is "for nearly every class."

<table>
<thead>
<tr>
<th>Traditional lecture</th>
<th>Lecture with demonstration</th>
<th>Lecture in which questions posed by instructor are answered by individual students</th>
<th>Lecture in which questions posed by instructor are answered simultaneously by the entire class</th>
<th>Small group discussion or think-pair-share</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Never 1</td>
<td>☐ Once or twice 2</td>
<td>☐ Several times 3</td>
<td>☐ Weekly 4</td>
<td>☐ For nearly every class 5</td>
</tr>
<tr>
<td>☐ Once or twice 2</td>
<td>☐ Several times 3</td>
<td>☐ Weekly 4</td>
<td>☐ For nearly every class 5</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Several times 3</td>
<td>☐ Weekly 4</td>
<td>☐ For nearly every class 5</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Weekly 4</td>
<td>☐ For nearly every class 5</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>☐ For nearly every class 5</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
15. In your most recent introductory course, please indicate the types of problem-solving activities that your students completed. (Check all that apply)

☐ Students were guided through a data analysis and problem solving activity
☐ Students solved a problem with little guidance
☐ Students posed and solved their own problem
☐ Students addressed a problem of national or global interest
☐ Students worked on a problem of interest to the local community
☐ Students accessed on-line data and analyzed them to solve a problem
☐ Students collected their own data and analyzed them to solve a problem
☐ Students used on-line tools to integrate their own data with a larger data set
☐ Students interpreted data in light of information in the primary literature

16. Please indicate how frequently you used the following student activities in teaching your most recent introductory course on a scale from 1 to 5, where 1 is "never" and 5 is "for nearly every class."

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Once or twice</th>
<th>Several times</th>
<th>Weekly</th>
<th>For nearly every class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students read the primary literature</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
17. Please indicate which of the following assessment strategies you used in your most recent introductory course. (Check all that apply)

- [ ] Exams
- [ ] Quizzes
- [ ] Papers
- [ ] Oral presentations
- [ ] Problem sets
- [ ] Portfolios
- [ ] Other, specify _______________________

18. Please indicate which of the following assessment tools you used in your most recent introductory course. (Check all that apply)

- [ ] Grading rubrics
- [ ] Peer review or other type of peer assessment
- [ ] Concept maps
- [ ] Other, specify _______________________

19. Did your students engage in group work?

- [ ] Yes
- [ ] No  If no, click to skip to question 21.
20. If Yes, how did you assign individual grades for group work?
   ☐ Single grade for group
   ☐ Individual grade
   ☐ Combination of group and individual grade
   ☐ Other, specify

30. Would you like to report on another introductory course you recently taught?
   ☐ Yes
   ☐ No
31. Which of the following best describes each of the courses for undergraduate majors that you taught during spring 2003 and fall 2003? Please enter the number of courses taught in each category.

- [ ] Atmospheric Science
- [ ] Geochemistry
- [ ] Geomorphology / Surface Processes
- [ ] Geophysics
- [ ] Hydrogeology
- [ ] Marine Geoscience
- [ ] Mineralogy
- [ ] Paleontology
- [ ] Petrology
- [ ] Planetary Geoscience
- [ ] Sedimentology / Stratigraphy
- [ ] Structural Geology / Tectonics
- [ ] Other, specify [ ]

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COURSE FOR MAJORS

Please select the most recent course for majors that you taught. If you taught two or more courses simultaneously, pick one.

32. What is the name of the course?

33. How many students were in that course?

34. Does your class have a separate associated laboratory section?
   - Yes
   - No

35. Does your class have a separate associated discussion section?
   - Yes
   - No

36. In the "lecture portion" of your course for majors, please estimate the percentage of class-time spent on student activities, questions, and discussion.

37. In the "lecture portion", please indicate how frequently you used the following teaching
strategies in teaching your most recent course for majors. Please use a scale from 1 to 5, where 1 is "never" and 5 is "for nearly every class."

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once or twice</th>
<th>Several times</th>
<th>Weekly</th>
<th>For nearly every class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional lecture</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Lecture with demonstration</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Lecture in which questions posed by instructor are answered by individual students</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Lecture in which questions posed by instructor are answered simultaneously by the entire class</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Small group discussion or think-pair-share</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Whole-class discussions</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Classroom debates or role-playing</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In-class exercises</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Fieldwork</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
</tbody>
</table>

The following questions pertain to the entire course including lecture, labs, and discussion sections.

38. In your most recent course for majors, please indicate the types of problem-solving activities that your students completed. (Check all that apply)

☐ Students were guided through a data analysis and problem solving activity
☐ Students solved a problem with little guidance
☐ Students posed and solved their own problem
☐ Students addressed a problem of national or global interest
☐ Students worked on a problem of interest to the local community
☐ Students accessed on-line data and analyzed them to solve a problem
☐ Students collected their own data and analyzed them to solve a problem
☐ Students used on-line tools to integrate their own data with a larger data set
☐ Students interpreted data in light of information in the primary literature

39. Please indicate how frequently you used the following student activities in teaching your most recent course for majors on a scale from 1 to 5, where 1 is "never" and 5 is "for nearly every class."

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
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<th>For nearly every class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students read the primary literature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students solved quantitative problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students completed on-line problem sets or activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students engaged in structured collaborations to solve problems</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

40. Please indicate which of the following assessment strategies you used in your most recent course for majors. (Check all that apply)

☐ Exams
☐ Quizzes
☐ Papers
☐ Oral presentations
☐ Problem sets
☐ Portfolios
☐ Other, specify
41. Please indicate which of the following assessment tools you used in your most recent course for majors. (Check all that apply)

- Grading rubrics
- Peer review or other type of peer assessment
- Concept maps
- Other, specify

42. Did your students engage in group work?
- Yes
- No  If no, click to skip to question 44.

43. If Yes, how did you assign individual grades for group work?
- Single grade for group
- Individual grade
- Combination of group and individual grade
- Other, specify

50. Would you like to tell us about another course for majors you recently taught?
- Yes
- No