

# Undergraduate Teaching in the Geosciences: Faculty Survey

Please respond within **two weeks**

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.

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## **YOUR BACKGROUND**

1. **What is the highest degree level that you have completed?**

Masters

PhD or doctorate

Other, *please specify:*

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2. **What was the year of your highest degree?**

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3. **How many years have you taught at the college or university level?**

*Do not include any experience as a teaching assistant*

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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

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Continue

## Undergraduate Teaching in the Geosciences: Faculty Survey Continued

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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
- 

Continue

## Undergraduate Teaching in the Geosciences: Faculty Survey Continued

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### **INTRODUCTORY COURSE**

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

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10. How many students were in that course?

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11. Does your class have a separate associated laboratory section?

Yes

No

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12. Does your class have a separate associated discussion section?

Yes

No

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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."

	Never	Once or twice	Several times	Weekly	For nearly every class
	1	2	3	4	5
Traditional lecture	<input type="radio"/>				
Lecture with demonstration	<input type="radio"/>				
Lecture in which questions posed by instructor are answered by individual students	<input type="radio"/>				
Lecture in which questions posed by instructor are answered simultaneously by the entire class	<input type="radio"/>				
	Never	Once or twice	Several times	Weekly	For nearly every class
	1	2	3	4	5

Small group discussion or think-pair-share	<input type="radio"/>				
Whole-class discussions	<input type="radio"/>				
Classroom debates or role-playing	<input type="radio"/>				
In-class exercises	<input type="radio"/>				
Fieldwork	<input type="radio"/>				

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

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**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."

	Never	Once or twice	Several times	Weekly	For nearly every class
	1	2	3	4	5
Students read the primary literature	<input type="radio"/>				
Students solved quantitative problems	<input type="radio"/>				
Students completed on-line problem sets or activities	<input type="radio"/>				
Students engaged in structured collaborations to solve problems	<input type="radio"/>				

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*

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21. Have you made any changes in content you teach in your introductory course within the past two years?

Yes

No *If no, click to skip to question 23.*

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22. If Yes, please describe the content changes that you made.

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23. How do you learn about new geoscience content? (*Check all that apply*)

Professional meetings or workshops

Publications

Discussions with other faculty members in my department

Discussions with colleagues in other institutions

On-line resources

My own research

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24. Have you made any changes in the teaching methods used in your introductory course within the past two years?

Yes

No *If no, click to skip to question 26.*

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25. If Yes, please describe the changes that you made.

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26. How do you learn about new teaching methods? (*Check all that apply*)

- Professional meetings or workshops
  - Publications
  - Discussions with other faculty members in my department
  - Discussions with colleagues in other institutions
  - On-line resources
  - My own research
- 

**Questions 27 to 29 should all refer to your most recent introductory course.**

27. Please estimate the percentage of students in your most recent introductory course who are female:

%

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28. Please estimate the NUMBER of students in your most recent introductory course who are:

African-American or Black

- Asian or Asian American
- Hispanic or Latino
- Native American or Alaskan Native
- White or Caucasian
- A member of a group not mentioned above
- 

**29. Please indicate the number of students in your most recent introductory course who required accommodations in the classroom for the following disabilities:**

None, I had no students who required accommodations for disabilities

Hearing disabilities

Learning disabilities

Mobility, orthopedic disabilities

Visual disabilities

Other *specify*

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**30. Would you like to report on another introductory course you recently taught?**

Yes

No

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## Undergraduate Teaching in the Geosciences: Faculty Survey Continued

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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*
- 

Continue

## Undergraduate Teaching in the Geosciences: Faculty Survey Continued

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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?**

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**33. How many students were in that course?**

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**34. Does your class have a separate associated laboratory section?**

Yes

No

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**35. Does your class have a separate associated discussion section?**

Yes

No

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**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."

	Never	Once or twice	Several times	Weekly	For nearly every class
	1	2	3	4	5
Traditional lecture	<input type="radio"/>				
Lecture with demonstration	<input type="radio"/>				
Lecture in which questions posed by instructor are answered by individual students	<input type="radio"/>				
Lecture in which questions posed by instructor are answered simultaneously by the entire class	<input type="radio"/>				
	Never	Once or twice	Several times	Weekly	For nearly every class

					<b>every class</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Small group discussion or think-pair-share	<input type="radio"/>				
Whole-class discussions	<input type="radio"/>				
Classroom debates or role-playing	<input type="radio"/>				
In-class exercises	<input type="radio"/>				
Fieldwork	<input type="radio"/>				

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

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**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."**

	Never	Once or twice	Several times	Weekly	For nearly every class
	1	2	3	4	5
Students read the primary literature	<input type="radio"/>				
Students solved quantitative problems	<input type="radio"/>				
Students completed on-line problem sets or activities	<input type="radio"/>				
Students engaged in structured collaborations to solve problems	<input type="radio"/>				

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*

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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*

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42. Did your students engage in group work?

- Yes
- No *If no, **click to skip to question 44.***

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**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*

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**44. Have you designed a new course for majors or made any changes to the content of a course for majors within the past two years?**

- Yes
- No *If no, click to skip to question 46.*

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**45. If Yes, what changes have you made in the content of your course for majors within the past two years?**

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**46. How do you learn about new course content? (Check all that apply)**

- Professional meetings or workshops
- Publications
- Discussions with other faculty members in my department
- Discussions with colleagues in other institutions
- On-line resources
- My own research

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47. Have you made any changes in the teaching methods that you used in your course for majors within the past two years?

Yes

No *If no, [click to skip to question 49.](#)*

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48. If Yes, please describe the changes that you made.

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49. How do you learn about new teaching methods? *(Check all that apply)*

Professional meetings or workshops

Publications

Discussions with other faculty members in my department

Discussions with colleagues in other institutions

On-line resources

My own research

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50. Would you like to tell us about another course for majors you recently taught?

Yes

No

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Continue

## Undergraduate Teaching in the Geosciences: Faculty Survey Continued

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### **GEOSCIENCE COURSE CONTENT AND RESEARCH IN YOUR FIELD**

51. At how many meetings have you presented your scientific research within the past two years?

- 
52. How many articles about your research have you published within the past two years?

- 
53. How do you stay current with geoscience content that is beyond the scope of your research?  
(Check all that apply)

- Communicate with colleagues
- Attend talks, poster sessions, or presentations
- Read journal articles
- Search internet
- Other, specify

- 
54. How many talks on geoscience topics did you attend in the past two years at professional meetings, on campus, or at other venues?

55. How often did you talk or correspond with your colleagues about course content over the past two years?

- Never
  - Once or twice per term
  - Several times per term
  - Weekly
  - Nearly every day
- 

### **PEDAGOGY**

56. Approximately how many talks on teaching methods, other topics related to science education, or geoscience education have you attended in the past two years at professional meetings, on campus, or at other venues?

57. How many workshops related to improving your teaching did you attend in the past two years?

58. How often did you talk or correspond with your colleagues about your teaching over the past two years?

- Never
- Once or twice per term
- Several times per term
- Weekly

Nearly every day

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**59. How often did you use on-line resources in the last two years to help you prepare for class or design your course?**

- Never
  - Once or twice per term
  - Several times per term
  - Weekly
  - Nearly every day
- 

**60. How often do you use the Cutting Edge website?**

- Never, I did not know there was such a website
  - Never, but I know of the website
  - Rarely
  - Monthly
  - Weekly or more often
- 

**61. If you have used it, which parts of the site did you use? (Check all that apply)**

- Topical resources
  - Teaching materials
  - Workshop information
  - Other, specify
-

**62. For which of the following have you used on-line teaching resources within the past two years?**  
*(Check all that apply)*

- Surf for ideas for your teaching
  - Download images or other materials for you to use in lecture
  - Find online or downloadable assignments for students
  - Learn about the content you will be teaching
- 

**63. Which of the following are your favorite web-based teaching resources? (Check all that apply)**

- Activities for students
  - Animations
  - Data sets
  - Data visualizations
  - Images
  
  - Models
  - Information about geoscience content
  - Information about teaching
  - Syllabi
- 

**64. Which of the following journals about teaching do you read regularly?**  
*(Check all that apply)*

- I do not regularly read journals about teaching
- Journal of College Science Teaching
- Journal of Geoscience Education

Talks / Posters / Presentations

Published in journals

None of the above

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[Continue](#)

Journal of Research in Science Teaching

Other pedagogical journals, *specify*

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65. Have you presented research on teaching methods or student learning at meetings within the past two years?

Yes

No

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66. How many articles have you published about educational topics?

If none, **[click here](#)** to skip to question 68.

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67. Of these articles, how many describe:

Your research on teaching methods or student learning

Your classroom or curriculum innovations

Other, *(Please describe)*

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68. Which of the following ways have you shared or published materials (e.g. syllabi, student assignments, resources for students) from your courses in the last two years? *(Check all that apply)*

In my department

Posted on-line

## Undergraduate Teaching in the Geosciences: Faculty Survey Continued

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### FOR DEPARTMENT CHAIRS

69. How many faculty are in your department?

.  FTE

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70. Estimate the percentage of females among the recipients of undergraduate degrees (BS/BA for those teaching at four-year colleges and universities or AA/AS for those teaching at two-year colleges) from your department over the past three years.

%

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71. Estimate the distribution among the recipients of undergraduate degrees (BS/BA for those teaching at four-year colleges and universities or AA/AS for those teaching at two-year colleges) from your department over the past three years.

- % African-American or Black
  - % Asian or Asian American
  - % Hispanic or Latino
  - % Native American or Alaskan Native
  - % White or Caucasian
  - % Members of a group not mentioned above
-

**72. Please indicate the number of recipients of undergraduate degrees (BS/BA for those teaching at four-year colleges and universities or AA/AS for those teaching at two-year colleges) from your department over the past three years, who required accommodations in the classroom because of the following disabilities.**

None, I had no students who required accommodations for disabilities

Hearing disabilities

Learning disabilities

Mobility, orthopedic disabilities

Visual disabilities

Other, *specify* \_\_\_\_\_

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