CBS Graduating Seniors 2013: Attitudes and Confidence Toward Science

Courtney Hoff
choff@umn.edu
Survey Information

- The data from the survey was downloaded on 6/3/2013 at 9:15 a.m.
- This survey was first administered on 5/4/2013
- Questions cover a variety of subject matters
  - Core Survey: Attitudes and Confidence toward Science
  - CBS Experience and Satisfaction
  - Research Experience
  - Future Goals/Plans/Decisions
- 354 Graduating Seniors Surveyed; 238 Students Responded to the Survey
- 219 finished the entire survey (91.6% of the total)
  - 3 duplicate responses were eliminated
Higher affiliation to CBS than UMN

62.55% of graduating seniors feel more affiliated with the College of Biological Sciences the University of Minnesota as a whole.
Satisfied with CBS Experience

- **Highest Satisfaction**: (“Very satisfied” or “Satisfied”): CBS Professors (86.27%) and Research Opportunities (75.11%) and Coursework (72.96%)
- **Lowest Satisfaction**: Career Information (only 11.26% were “Very Satisfied” or “Satisfied” and 31.17% were “Very Dissatisfied” or “Dissatisfied”) and Advising (only 39.66% were “Very satisfied” or “Satisfied “and 18.10% were “Very dissatisfied” or “Dissatisfied”)
Research Reputation is Important

- 64.81% found CBS’s research reputation “important” or “very important” in deciding to come to the University of Minnesota, College of Biological Sciences.
76.60% of Graduating Seniors Performed One or More Research Projects

- 76.60%
- 23.40%

- I worked on one or more research projects during my time in CBS.
- I did not work on a research project during my time in CBS.
41.2% Engage in 3 Research Experiences

- From the 76.60% of students who said they had performed one or more research projects, the most common response for “total number of research experiences” was 3 experiences.
4 Semesters of Research is Most Common

From the 76.60% of students who said they had performed one or more research projects, the most common response for “total number of semesters of research” was 4 semesters.
CORE SURVEY RESULTS

• The core survey is based on a variety of published works to better understand our students’ attitudes and confidence toward science.

• We also ask questions to gauge their professional identity and ability to adapt and work with others.
91.49% of graduating seniors are “Never” or “Rarely” reluctant to admit that they go to CBS and 95.30% “Never” or “Rarely” hide that they attend CBS.

78.11% of graduating seniors are “Always” or “Almost Always” proud that they attend CBS and 89.27% are “Always”, “Almost Always” or “Frequently” proud.

Percent of positive responses (Always, Almost Always and Frequently) for the statements: “I am pleased to be a part of CBS” (87.23%), “I can identify positively with my peers at CBS” (82.33%), “Being a member of CBS is important to me” (79.83%).

Lowest scores (“Always” or “Almost Always”) were for the statements, “I am a valuable member of CBS” (46.58%) and “I have strong ties to CBS” (34.76%).
Cognitive Flexibility

CBS Graduating Seniors of 2013 display high levels of cognitive flexibility.

This survey question is based on the Cognitive Flexibility Scale (Adams et al., 2006; Martin & Rubin, 1995)
Perceptions & Understanding of Group Work

- CBS Graduating Seniors have a strong understanding and perception of group work and being a team member.
- This survey question is based upon the Team Scale (Adams et al., 2006; Rentsch, 1993).
Positive Change in Science Skill Set

The questions that were asked were:

1. “Thinking back to WHEN YOU FIRST STARTED in CBS, how would you rate your skill level for each of the following?”
2. “Now, AS A GRADUATING SENIOR, how would you rate your skill level for each of the following?”

Perceived Progress on Science Skill Set by Graduating CBS Seniors 2013

- The questions that were asked were:
  
  1. “Thinking back to WHEN YOU FIRST STARTED in CBS, how would you rate your skill level for each of the following?”
  2. “Now, AS A GRADUATING SENIOR, how would you rate your skill level for each of the following?”

Number of Graduating Seniors

<table>
<thead>
<tr>
<th>Skill</th>
<th>Prior</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct research in a lab setting</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td>Think critically about problems</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Analyze data</td>
<td>75</td>
<td>175</td>
</tr>
<tr>
<td>Read primary research literature</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td>Design my own experiments</td>
<td>25</td>
<td>125</td>
</tr>
<tr>
<td>Present research orally</td>
<td>10</td>
<td>140</td>
</tr>
<tr>
<td>Present research in writing</td>
<td>5</td>
<td>145</td>
</tr>
<tr>
<td>Discuss scientific research with my peers</td>
<td>20</td>
<td>180</td>
</tr>
<tr>
<td>Discuss scientific research with experts</td>
<td>5</td>
<td>195</td>
</tr>
</tbody>
</table>
Confidence in Science Skills

Graduating Seniors are **most confident** ("Extremely Confident" or "Very Confident"): Understanding the importance of controls in research (84.07%), Observing and collecting data (80.53%), and Making use of the primary research literature in their fields (i.e. journal articles) (76.55%).

Graduating Seniors are **least confident** ("Slightly confident" or "not confident"): Writing a research paper for publication (29.20%), Statistically analyzing data (19.91%) and Designing an experiment or theoretical test of the hypothesis (12.83%).

This survey question was based on: Kardash, C. M. (2000).
This survey question was taken from the Survey of Undergraduate Research Experience (Lopatto, 2004).

Graduating seniors “Strongly Agree” or “Agree” that: science is valuable for society, get personal satisfaction solving a scientific problem, and will be able to use scientific thinking to solve problems.

Survey respondents “Strongly Disagree” or “Disagree” most often to: science will have more negative repercussions than positive, and creativity does not play a role in science.
Higher Education Plans
57.53% Plan to Earn a Professional Degree

- Over half (57.53%) of the graduating seniors that responded to the survey are planning on going to Professional School (Medical, Dental, Law, Business, etc.)
- Only 6.39% plan to only earn a Bachelor’s Degree
Over Half that Plan to attend Professional School, Plan to Attend Medical School
Higher Education Plans

Start Graduate School

<table>
<thead>
<tr>
<th>Time</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a couple of years</td>
<td>43.04%</td>
</tr>
<tr>
<td>Next year</td>
<td>39.24%</td>
</tr>
<tr>
<td>This summer/fall</td>
<td>17.72%</td>
</tr>
</tbody>
</table>

Start Professional School

<table>
<thead>
<tr>
<th>Time</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a couple of years</td>
<td>26.19%</td>
</tr>
<tr>
<td>Next year</td>
<td>34.92%</td>
</tr>
<tr>
<td>This summer/fall</td>
<td>38.89%</td>
</tr>
</tbody>
</table>

Top Responses: Where Attending

<table>
<thead>
<tr>
<th>University</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Minnesota</td>
<td>7.66%</td>
</tr>
<tr>
<td>Not Sure</td>
<td>3.83%</td>
</tr>
<tr>
<td>Undecided</td>
<td>1.28%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>University</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Minnesota</td>
<td>23.83%</td>
</tr>
<tr>
<td>Medical College of Wisconsin</td>
<td>1.28%</td>
</tr>
</tbody>
</table>
Highest Importance: Having a Family and Developing Personally

- 98 out of 218 students selected “of highest importance” out of 218 students who responded to the statement.
- “Achieving wealth” was chosen least often for “of highest importance” with only 13 out of 218 students responding to the statement.


