Our online professional development course aids educators in increasing their knowledge and comfort in teaching evolution.

### Course Content Deepened Understanding of Evolution

<table>
<thead>
<tr>
<th>Percent of Responses</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pre and Post Course Confidence: Teaching Evolution to High School and AP Biology Students

<table>
<thead>
<tr>
<th>Percent of Responses</th>
<th>No Confidence</th>
<th>Slight Confidence</th>
<th>Moderate Confidence</th>
<th>High Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pre and Post Course Confidence: Assigning Authentic Scientific Data to Students

<table>
<thead>
<tr>
<th>Percent of Responses</th>
<th>No Confidence</th>
<th>Slight Confidence</th>
<th>Moderate Confidence</th>
<th>High Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Plans to Use Course Resources Next Teaching Evolution

<table>
<thead>
<tr>
<th>Percent of Responses</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Summary
- The majority responded positively to the course.
- This course consists of three units and the total time required for the entire course is estimated to be 15 hours.
- 95% of educators strongly agreed or agreed the course deepened their understanding of evolution.
- Educator’s confidence in teaching evolution (high school and AP) increased by 30% after finishing the course.
- Confidence in utilizing authentic scientific data was 90% after Unit 1 (of 46%) and 96% after Units 2 & 3 (of 33%).
- Using BioInteractive resources to teach evolution content reporting Moderate to High confidence increased from 59% to 94% for Unit 1 and 64% to 97% for Units 2 & 3.

### Staff Quotes
- "This was totally amazing. This helped me see how I can get my students involved in science by using real world applications without having to go to the Galapagos Island, etc. I can’t wait to show my students these great activities."
- "This is not my field of expertise, so I am very appreciative that this course gave me a lot more confidence than I had before I took it. I also took it to find more resources for my students which I got and am looking forward to using."
- "This was an unbelievable experience! I loved every bit of it. It makes the study of evolution so clear... If teachers today taught evolution the way you did in this course... everyone would totally understand it."

---

BioInteractive’s Online Professional Learning Course on Evolution: Overview and Evaluation

**BACKGROUND**

Howard Hughes Medical Institute’s BioInteractive Professional Development Evolution course, published in 2018, was developed to provide educators with in-depth, multimedia resources that highlight important scientific concepts and studies in evolution and engage participants through interactive activities that link to student resources.

**OBJECTIVES**

1. Deepen content knowledge of evolutionary concepts that are essential to NGSS and AP Biology courses.
2. Increase confidence and comfort in teaching evolution content to general biology and AP Biology students.
3. Identify major evolutionary concepts in scientific studies, authentic data, or educational media used to teach evolution.
4. Identify and incorporate relevant BioInteractive resources to illustrate evolutionary content and science practices in teachers’ own course(s).

**COURSE FEATURES**

- Interactive, Engaging Media
  - Record-breaking, high-quality short films, interactive, and online interactive exercises.
- Comprehensive Notebook
  - Answer reflection and action questions and view learning outcomes.
- Direct Links to Related Resources
  - Help link learning with resources and activities to use with students.
- End of Lesson Review Options & Tests
  - Assessments enhance learning and retention of content.
- Deeper Content Dives
  - Additional resources to provide teachers with implementation tips for different course units.
- Educator Tips
  - Additional tools to personalize your course experience.

**RESULTS**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>Unit 2&amp;3</td>
<td>50%</td>
<td>85%</td>
</tr>
</tbody>
</table>

**SUMMARY**

- The majority responded positively to the course.
- This course consists of three units and the total time required for the entire course is estimated to be 15 hours.
- 95% of educators strongly agreed or agreed the course deepened their understanding of evolution.
- Educator’s confidence in teaching evolution (high school and AP) increased by 30% after finishing the course.
- Confidence in utilizing authentic scientific data was 90% after Unit 1 (of 46%) and 96% after Units 2 & 3 (of 33%).
- Using HHMI BioInteractive resources to teach evolution content reporting Moderate to High confidence increased from 59% to 94% for Unit 1 and 64% to 97% for Units 2 & 3.

---

**Dr. Paul Beardsley, Melissa Csinki, Ashley Ertzman, Meghan Jeffus**