Teaching Evaluations

• I read every suggestion / comment
• Incorporated into future classes – your ideas and suggestions really do matter. For example:
  – Less emphasis on exams
  – More preparation for midterm exam
  – Shortened midterm exam
• https://eval.olt.ubc.ca/arts
• Confidential and anonymous; I receive your comments after the course grades are submitted
• You can access the aggregate data
  – Student Evaluation of Teaching website http://teacheval.ubc.ca
Why study animal behavior?

- Conservation


Atrazine induces complete feminization and chemical castration in male African clawed frogs (Xenopus laevis)

Tyrone B. Hayes\textsuperscript{a,1}, Vicky Khoury\textsuperscript{a,2}, Anne Narayan\textsuperscript{a,2}, Mariam Nazir\textsuperscript{a,2}, Andrew Park\textsuperscript{a,2}, Travis Brown\textsuperscript{a}, Lillian Adame\textsuperscript{a}, Elton Chan\textsuperscript{a}, Daniel Buchholz\textsuperscript{b}, Theresa Stueve\textsuperscript{a}, and Sherrie Gallipeau\textsuperscript{a}
Why study animal behavior?

- Human health
  - Avian influenza and bird migration routes
  - Pair bonding / social attachment and autism

https://www.youtube.com/watch?v=Iko7UXC-M94&list=PLA1D7BD1295076BB1&index=1

- More generally, all new drug candidates must succeed in animal trials before human clinical trials, without exception.
  - For autism, depression, schizophrenia, Alzheimer’s disease, cancer, AIDS, diabetes, etc.
Why study animal behavior?

- **Economic**
  - Honeybees annually pollinate more than $14 billion worth of seeds and crops in the US
  - “Every third bite we consume in our diet is dependent on a honeybee to pollinate that food”

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**Relying on Bees**

Some of the most valuable fruits, vegetables, nuts and field crops depend on insect pollinators, particularly honeybees.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Crop value in billions 2006</th>
<th>Percentage pollinated by honeybees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans</td>
<td>$19.7</td>
<td>5%</td>
</tr>
<tr>
<td>Cotton</td>
<td>5.2</td>
<td>16%</td>
</tr>
<tr>
<td>Grapes</td>
<td>3.2</td>
<td>1%</td>
</tr>
<tr>
<td>Almonds</td>
<td>2.2</td>
<td>100%</td>
</tr>
<tr>
<td>Apples</td>
<td>2.1</td>
<td>90%</td>
</tr>
<tr>
<td>Oranges</td>
<td>1.8</td>
<td>27%</td>
</tr>
<tr>
<td>Strawberries</td>
<td>1.5</td>
<td>2%</td>
</tr>
<tr>
<td>Peanuts</td>
<td>0.6</td>
<td>2%</td>
</tr>
<tr>
<td>Peaches</td>
<td>0.5</td>
<td>48%</td>
</tr>
<tr>
<td>Blueberries</td>
<td>0.5</td>
<td>90%</td>
</tr>
</tbody>
</table>

Besides insects, other means of pollination include birds, wind and rainwater.

*Sources: United States Department of Agriculture; Roger A. Morse and Nicholas W. Calderone, Cornell University*

[http://www.ted.com/talks/marla_spivak_why_bees_are_disappearing.html](http://www.ted.com/talks/marla_spivak_why_bees_are_disappearing.html)
Why study animal behavior?

- **Curiosity** – “basic” or “fundamental” research is a long-term investment, which can yield revolutionary advances and unexpected benefits!

http://www.goldengooseaward.org/
Course goals

• How to study animal behavior **using the scientific method**
  – Inspire curiosity

• Encourage **critical and creative thinking**
  – Strengths of a study?
  – Weaknesses / limitations of a study?
  – What is **not known**? Propose new experiments

• Find & read original scientific literature
  – Web of Science, PubMed, Google Scholar

• Improve oral and written communication
Science is a process

• Science is a way of trying to understand the natural world. Science is not a list of facts to memorize.

• Science is a process of human inquiry
  • Systematic approach – controls, random assignment, “blind” etc.
  • Skepticism – try to refute hypotheses
  • Dynamic – old ideas are re-evaluated in light of new data
  • Uncertainty – no single study is perfect; converging lines of evidence decrease uncertainty and increase confidence

• Our society needs people in all walks of life that can interpret and critically evaluate the results of scientific studies
http://www.ted.com/talks/beau_lotto_amy_o_toole_science_is_for_everyone_kids_included.html
Put a little science in your life

http://www.guardian.co.uk/science
http://news.sciencemag.org/sciencenow/
http://www.ted.com/
http://www.bbc.co.uk/podcasts/series/timc
http://www.cbc.ca/quirks/
http://sciencefriday.com/

http://www.uroubc.ca/
http://psa.psych.ubc.ca/
http://murc.ubc.ca/
http://students.arts.ubc.ca/involvement/research-in-arts/

Volunteer, Directed Studies, Work Learn, Summer Research etc.
Questioning authority

SIGNATURE VERSUS PERCEPTUAL ADAPTATIONS FOR INDIVIDUAL VOCAL RECOGNITION IN SWALLOWS

by

PATRICIA LOESCHE, PHILIP K. STODDARD, B. J. HIGGINS and MICHAEL D. BEECHER

(Animal Behavior Program, Department of Psychology, University of Washington, Seattle WA 98195, U.S.A.)

https://www.youtube.com/watch?v=0Rnq1NpHdmw&sns=em
What is the most important thing you learned in this class?

What are you most likely to remember in 5 years?

What is one thing that you have changed your mind about, as a result of this class?