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Teaching Information Literacy Using a Train-the-Trainer Model with Biology Lab Instructors

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Information Literacy (IL)

- a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information"
  - Association of College & Research Libraries
- IL as underlying assumption of most competencies

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Changing Role of Librarians

- Instruction
- Bridge student/professor gaps
- Subject librarians/liaisons
  - Outreach
  - Faculty buy-in
  - Point of need
  - Relevancy

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IL Instruction to Biology

- No IL classes specific to Biology
- Problem-based
- Filling gap between theory and practice
- Making connections in applied science

Goal: Students can locate peer-reviewed journal articles in Web of Science by using appropriate keywords and search operators.

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Getting Started

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Faculty Buy-in

- Pick the right course
- Establish individual relationships
  - *What do your students need to know to succeed in this course and beyond?*
- Be specific

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Collaboration

- Point of need
- Align our learning outcomes with course coordinator's
  - Compromise
- Train-the-trainer

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Implementing the Plan

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BIO 155 Course Description

- Intro Biology Lab for Biology majors
  - Approximately 80% freshman and sophomores
- 17 sections of 20-30 students
  - Total of 34 sessions over 2 weeks
    - 1st class session typically lasted 1 hour 15 minutes
    - 2nd class session typically lasted 50 minutes

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Interactive Environment

Train-the-Trainer Model

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Instructors

- 9 Teaching Assistants – 1 overall course coordinator
- 2 Librarians
  - 3 Library Graduate Students

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Modeling

- Teaching Assistants were introduced to library component during their weekly TA meeting
- We “modeled” the in-class information literacy session for each Teaching Assistant during his or her first section of the week using two library instructors and then assisted the TA as he or she taught the material using only one library instructor
- Effective and non-threatening way to share information with TAs: “Only thing I’ve ever used is Google Scholar”

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Advantages

- Students are already familiar with the instructor/Teaching Assistant
- TA will continue to be a resource for the students after the two class sessions
- TA helps Librarians cover more courses/sections
- TAs possibly become train-the-trainer advocates for other courses and more aware of library services

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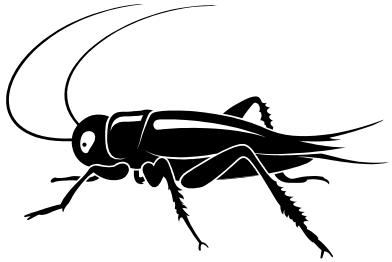
Observations



- Each Teaching Assistant has their own individual teaching style and comfort level with new material
  - Okay to be flexible
- Train-the-Trainer model is a great way to get feedback from Teaching Assistants and fellow Librarians
- Hearing crickets isn't necessarily a bad thing!

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Class Structure

Course Guide

BIO 155

Introductory Biology Laboratory

Welcome BIO 155 Students!

This guide will help you with lab reports and provide a basic understanding of how to find and use information effectively. Here you will find links to the following:

- Databases covered in class
- Ways to find background information
- Research tips
- Appropriate citation format for your lab reports
- Plagiarism policies and tutorials

Please feel free to contact me or any other personnel at the Agricultural Information

Popular Science Databases

- Web of Science
  Web of Science is the main database you will use when searching for articles in this class. It contains links to >12 million journals and >46 million records. You can search by subject, author, article title, and more. You can also find references cited by a particular article, as well as articles that cite a known author or work.
- PubMed (University of Kentucky)
  From the U.S. National Library of Medicine. Indexes >22 million citations in the fields of medicine, nursing, veterinary, dentistry, health care, and pre-clinical sciences going back to 1948. Includes links to full-text articles and other related resources.
- BIOSIS Previews and Biological Abstracts/RRM

Director of Branch Libraries, Agriculture Liaison, Biology Liaison

Valerie Perry

Active Learning

- Follow along on computers
- Brainstorm
- Live search demonstrations
- In-class exercises
  - Formative assessment
  - Made students turn something in for a grade

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Brainstorming Tool

Have you used Poll Everywhere?

If you have used other polling software, what have you used?

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Brainstorming

How does climate change affect bird behavior?

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How does climate change affect bird behavior?

Start this poll to accept responses

"warming, bird behavior, climate change, migration patterns, bird flight patterns, bird nesting, global warming"
3 months ago

"birds, global warming, migration"
3 months ago

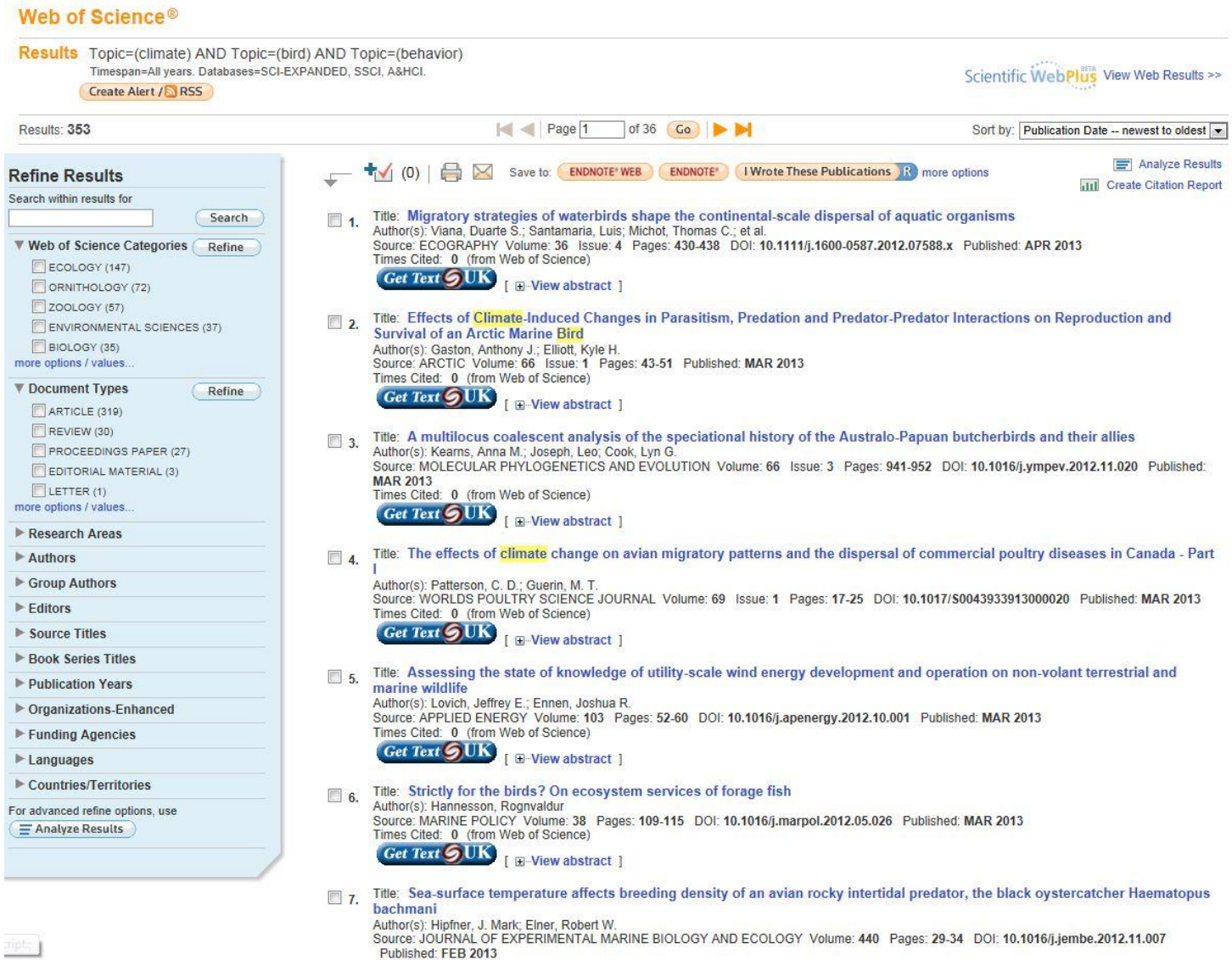
"climate change birds behavior"
3 months ago

"bird, behavior, activity, climate, seasons, weather, global warming"
3 months ago

"birds, climate, weather, changes, behavior, actions, climate change, migration, global warming"
3 months ago

"reproduction, feeding, food sources, environment, weather, migrating, appearance change, evolution"
3 months ago

Live Search Demonstrations



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In-class exercise

Searching in Web of Science

Think back to the termite lab you did in class earlier in the semester. Imagine you want to review the scientific literature in order to better understand why the termites followed the trail of the ballpoint pen. In this exercise, you will use Web of Science to search for articles about termite behavior.

Part 1: Starting your search

Brainstorm for keywords or phrases related to your topic. If you need some inspiration, try one of the websites listed under Background Information on the Starting Research page of the BIO 155 Course Guide (libguides.uky.edu/BIO155) – these are *not* primary sources or peer-reviewed articles, but you can use them to help generate ideas. Your textbook is also a good place to look.

From the list above, which words do you think best describe your topic?

Go to Web of Science and try a search using the words in the box above as keywords (Topic).

How many results did you get? _____

If you didn't get any results, try a different combination of words, reduce the number of keywords, or ask for help from the instructors. Which words did you use and how many results do you get now? _____

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Student Responses

- There are a lot of ways to find articles besides Google.
- I learned how to effectively use keywords when looking for relevant articles.
- I didn't know the web of science existed.

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Student Responses, continued

- I learned how to use web of science and how to broaden and narrow my search.
- I learned how to use the UK library website and how to retrieve scientific articles to incorporate into research-based assignments.
- I learned that Web of Sciences exists, and can definitely see it helping in the future when I need a scientific, peer-reviewed, accredited source.

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Assessment

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ACRL Information Literacy Competency Standards for Higher Education

1. Determines the nature and extent of the information needed.
2. Accesses needed information effectively and efficiently.
3. Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
4. Individually or as a member of a group, uses information effectively to accomplish a specific purpose.
5. Understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

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UK Information Literacy Learning Outcomes

1. Students will be able to define an information need in order to construct an effective research strategy.

2. Students will be able to construct an effective research strategy in order to identify a variety of relevant information sources.

3. Students will be able to identify and select relevant information sources in order to analyze and interpret the information.

4. Students will be able to analyze and interpret information in order to evaluate, synthesize, and draw conclusions.

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Question Form

Last Name *

First Name *

What is your year in school? *

Choose your section number from the drop down menu below. *

Please use the research topic given below to answer the rest of the questions.

- How does mercury impact aquatic food webs?

What are the major concepts/topics of your research topic chosen above? *

Please list the keywords or key phrases that could be used to locate information on your research topic. *

Create search queries using combinations of keywords and key phrases that could be used in a library database, such as Web of Science. *

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Rubric

Learning Outcome 2.1: Constructs Effective Research Strategy /Constructs Search Terms and Phrases

2 Constructs effective research strategy	0 Emerging	1 Developing	2 Proficient	3 Distinguished
2.1 Constructs search terms and phrases	Uses everyday language to describe key concepts.	Uses everyday language to describe key concepts. Lists synonyms to expand key concepts.	Uses everyday language and synonyms to describe key concepts. Translates everyday language and synonyms into appropriate subject terms for key concepts.	Uses everyday language and synonyms to describe key concepts. Translates everyday language and synonyms into appropriate subject terms for key concepts. Combines key concepts to formulate a search strategy.

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Scoring Sheet Example

BIO 155 Spring 2013 (Responses) as of 4-25-2013

What is your year in school?	Choose your section number from the drop down menu below.	Please use the research topic given below to answer the rest of the qurestions.	What are the major concepts/topics of your research topic chosen above?	Please list the keywords or key phrases that could be used to locate information on your research topic.	Create search queries using combinations of keywords and key phrases that could be used in a library database, such as Web of Science.	Score
Sophomore (30 - 59 hours)	BIO 155 - 001	How does mercury impact aquatic food webs?	Animal endangerment and health of animals in the environment and humans who use the water for drinking	Mercury, water, danger	Ocean and mercury and health	Ø
Sophomore (30 - 59 hours)	BIO 155 - 001	How does mercury impact aquatic food webs?	Mercury, aquatic food webs, impact of mercury on food webs	Mercury, aquatic food webs, impact, mercury impact on food webs, food webs	Mercury Aquatic food webs Effects Impact	Ø
Freshman (1-29 hours)	BIO 155 - 001	How does mercury impact aquatic food webs?	The affects of aquatic food webs due to mercury	1. aquatic food webs 2. mercury	1. How does mercury impact aquatic food webs? 2. Aquatic food webs AND mercury 3. The relationship of mercury and aquatic food webs.	Ø
Freshman (1-29 hours)	BIO 155 - 001	How does mercury impact aquatic food webs?	Ecological effects Species health Fitness Adaptation Evolitionary Niche	Mercury Aquatic Ecosystem	Mercury Aquatic Ecosystem	1

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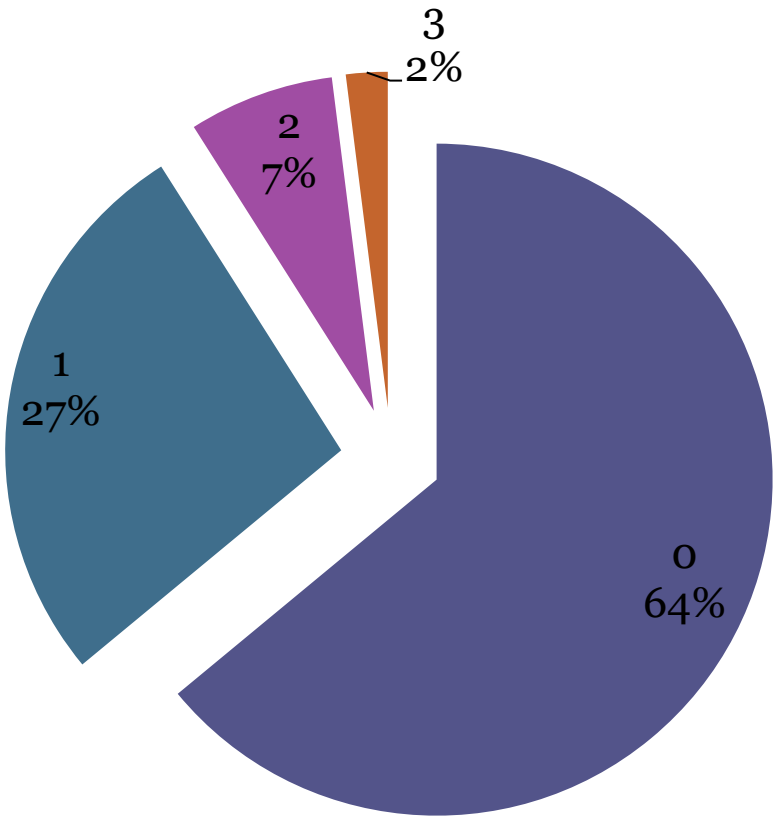
Scoring Results



0 – Emerging

1 – Developing

2 – Proficient

3 - Distinguished

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What We Learned

- Scheduling challenges
  - Covered 34 sessions in two weeks
- Lab environment +
  - Adapted to facility
  - Adapted to computer & networking environment
- Be open to compromise!
  - Share your expertise
  - Be willing to consider other viewpoints

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What We Learned: Train-the-Trainer

- Kept content consistent through the use of common outlines and other tools
  - Powerpoint presentation, outline, exercises and in-class activities for each week
  - One course guide for all sections
- Should reduce library personnel workload
- Effective way to broaden our audience
  - TAs admitted learning!
- Overall positive experience

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Future Plans

- Simplify PowerPoint and outline
- Provide instructions to TAs more than one week in advance
- Send out assessments earlier in semester
- Consider embedding in Blackboard
- Request for inclusion in syllabus
- Conduct TA evaluations for feedback

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Please share something that resonated with you or that you would like to learn more about.

Send a text message to 37607, then type 658228 followed by your message

OR

submit 658228 and your message to pollev.com

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Thank you…

- Dr. Lin Xiang
- BIO 155 Teaching Assistants

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Questions?

Feel free to contact us for more information:

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You can find our presentation at:
https://sites.google.com/site/kictrainthetrainer/

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