

**For Committee Use Only**

Course	BIO 305 (v. 2)
Date Submitted	05-05-09
Action	Approved
Date Action Taken	05-06-09

## Writing Intensive Course Proposal Form

NEIU Writing Intensive Program, Center for Academic Writing  
Ronald Williams Library [www.neiu.edu/~wip](http://www.neiu.edu/~wip)

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Beginning with students who newly enroll in Fall 2008, all students must successfully complete a Writing Intensive course within their discipline in order to graduate. Successful completion of ENG 101 or its equivalent with a grade of "C" or better is a prerequisite to enrolling in a Writing Intensive course. Writing Intensive courses must be NEIU courses.

Writing Intensive courses:

- Are 200-level or 300-level courses offered relatively early in the major
- Must be a minimum of 3 credit hours
- Have an absolute maximum of 25 students so that the instructor can devote a great deal of time to provide feedback on early drafts of written work
- Have CU class-size adjustments following the contractual guidelines specified for ENG 101
- Meet the Writing Intensive Guidelines (see p. 3 or <http://www.neiu.edu/~wip> for the guidelines)

Departments and programs have several options for implementing Writing Intensive courses:

- Create a new course to add to the list of requirements for the major\*
- Modify an existing course\*
- Choose to offer one course that students must use to fulfill the Writing Intensive requirement or allow students to choose one of several courses that can be used to fulfill the Writing Intensive requirement
- Work with faculty in a group of departments/programs to develop a Writing Intensive course that can be used by all their majors
- Consult with the Writing Intensive Faculty Advisory Committee (WIFAC) if they wish to propose alternative ways of providing Writing Intensive courses for their majors

**\*Note:** Departments and programs that choose to create a new required course or modify an existing course that was not previously required will need to propose a change in the major program and submit the program change through the appropriate governing bodies.

Departments and programs are encouraged to review the *Developing Writing Intensive Courses: Questions for Departments and Programs to Think About and Discuss* document available through the Center for Academic Writing.

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Support for designing Writing Intensive courses, preparing the course proposal documents, and/or designing and implementing writing assignments is available through the Center for Academic Writing.

Please contact Kate Hahn at x4490 or [mk-hahn@neiu.edu](mailto:mk-hahn@neiu.edu) with any questions or visit <http://www.neiu.edu/~wip> for more information.

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## Writing Intensive Course Proposal Form

### INSTRUCTIONS

The following need to be submitted electronically to WIFAC at [mk-hahn@neiu.edu](mailto:mk-hahn@neiu.edu) for each course that is proposed:

- Writing Intensive Course Proposal Form
  - Available at <http://www.neiu.edu/~wip>
- Curricular Proposal Transmission Form
- Course Proposal Checklist (and any necessary additional documents, e.g. proposal rationale)

Please use the "Save As" function to save this document with the Subject and Course Number of the proposed course as the document name (for example, PSYC202.doc). Provide the information requested on the following pages.

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Subject: BIO (Biology)

Course #: 305

New Course       Existing Course

Credits: 4

Course Abbreviated Title (29 characters max): WIP: Ecology

Course Title: WIP: General Ecology

Average Weekly Contact Hours: 6

Discussion       Independent Study  
 Field Experience       Student Teaching  
 Lecture       Hybrid/Online

Course Description (100 words max; for catalog): An introduction to the basic concepts of ecology. Study of the factors/interactions that determine the distribution and abundance of species at the individual, population, community, and ecosystem levels. You will write in a variety of discipline-specific formats, satisfying the writing intensive requirement. Lecture, laboratory, and fieldwork, with up to two field trips scheduled on a Friday, Saturday, or Sunday. (WIP)  
Prerequisites: BIO 150, BIO 202, and ENGL 101. Recommended: ENGL 102.

## WI GUIDELINES

Complete the chart below by showing how the proposed course meets each of the WI Guidelines. If information is provided in the syllabus, please copy it here. Refer to the complete guidelines below for more information.

<b>1. Active instruction in disciplinary writing</b>	<p>Students will learn various discipline specific formats by analyzing published examples during guided in-class activities during which they obtain feedback from the instructor. For example, a laboratory period will be set aside for learning the most complex format, the primary research paper (see week 1 on p. 4 of syllabus). Students will analyze the content of each section of a primary research paper (abstract, introduction, methods, results, discussion, acknowledgements, and literature cited) during an instructor-led, guided activity. For example, an introduction section should contain background information necessary to understand the research topic, a justification of the research necessity, and a statement of research objectives. Students will work in groups to analyze whether they feel the authors accomplished those tasks. They will share their thoughts with the class during a class discussion, during which the instructor will build upon students' comments to further explain the elements of an effective introduction. Ungraded writing activities will supplement active instruction. For example, in the ungraded assignment submitted with this course proposal, students gain practice with writing a results section. They will receive feedback about their ungraded writing before completing the assignment to be graded.</p> <p>Instructors will utilize a required textbook for the course, <i>Writing Papers in the Biological Sciences</i>, during active instruction in disciplinary writing. The textbook includes chapters about searching the biological literature, writing in lab/field notebooks, writing the sections of a primary research paper, creating proper tables and figures, documenting a paper, and revising drafts. For example, students will be required to check the graphs they produce against the list of required items (e.g. unit of measurement) described in the textbook.</p>
<b>2. Equivalent of at least 15 pages of graded writing assignments</b>	<p>Refer to item #3 for more information and details about each of these assignments.</p> <p>Field/Laboratory Notebook: Entries will be kept most weeks during the semester. Four entries (3-4 pages each) will be randomly chosen during the semester for grading. Total: 12-16 pages.</p> <p>Primary Research Paper: 7-9 pages</p> <p>Powerpoint Presentation: Students will work in groups- about 1 page per student.</p> <p>Letter of Persuasion: 1 page.</p> <p>Take-home essay exam questions: 4-6 pages.</p> <p>Total: 25-33 pages.</p>

<p><b>3. Multiple types of writing</b></p>	<p>Field/Laboratory Notebook: Writing proper field/laboratory entries (with goals, hypotheses, field site description, protocol, tables and graphs of results, and data analysis) will prepare students for other laboratory courses as well as give them a skill that will help them obtain a job or pursue graduate study.</p> <p>Primary Research Paper: For data obtained during a multi-week field and laboratory exercise, students will write a primary research paper, with abstract, introduction, methods, results, discussion, acknowledgements, and literature cited sections. Because students will compare their data to that in the scientific literature, they will also become more proficient at reading and interpreting primary research papers. Another advantage of the assignment is that students will use their own data, increasing their interest.</p> <p>Graphing Data: Both the field/laboratory notebook and the primary research paper will require students to graph data. Students will learn multiple graphing formats (e.g. scatterplots, line graphs, bar graphs with error bars), in order to choose the best format for a data set.</p> <p>Powerpoint Presentation: Students will prepare visual aids for an oral presentation based upon lab data. Slides must have a minimum of text, written in bulleted format, that clearly and concisely supports main points. Tables or graphs must highlight important data in a manner in which the audience can understand in a short time.</p> <p>Letter of Persuasion: An exciting aspect of studying ecology is its relevance in today's world. Students will write a letter that could be submitted to an elected official or to the editor of a newspaper, using ecological information to support an opinion about an environmental issue of current importance. In addition to making students better citizens, learning to support an argument through writing is a crucial career skill.</p> <p>Take-home essay exam questions: Portions of exam 1 and exam 2 will consist of take-home essay questions. In addition to requiring correct understanding of ecological concepts, 20% of the grade for each of these questions will be based upon grammar, structure and style. Answers must be written with correct grammar and punctuation, in paragraphs with topic sentences, with each sentence in a paragraph building upon the previous sentence, and with appropriate transitions between paragraphs.</p>
<p><b>4. At least 50% of course grade from graded writing assignments</b></p>	<p>Graded writing assignments will constitute 50% of the 500 total points for the course, as follows.</p> <p>Lab/field notebook: 80 points</p> <p>Primary research paper: 75 points (25 points for draft, 50 points for final submission)</p> <p>Visual aids for oral presentation: 10 points</p> <p>Persuasive letter: 15 points</p> <p>Variety of short writing assignments (e.g. analysis of published research paper, presenting data in graphs): total of 40 pts.</p> <p>Take-home essay exam questions: Total of 30 pts.</p>

<p><b>5. Opportunities for multiple drafts</b></p>	<p>Students will submit multiple drafts of the primary research paper, the powerpoint presentation, and the letter of persuasion. Substantive comments will be provided on early drafts, before a final grade is assigned, so that students will obtain clear, individualized instruction about the main issues that each student needs to address to improve his/her writing. In addition, peer review will be utilized. During an in-class exercise, students will be given a classmate's primary research paper to critique. In addition to providing comments that will help the writer, critiquing another student's draft is an excellent way to learn evaluation skills that can be applied to improve one's own writing. Students will also evaluate one another's graphs and letters of persuasion.</p>
<p><b>6. Ungraded writing activities</b></p>	<p>There will be multiple opportunities for spontaneous writing during class. Instead of simply interpreting a graph for students, instructors may stop lecture and ask students to write a summary of the data shown. Instructors may also ask students to write an explanation of the most important or most difficult aspect of a lecture topic.</p> <p>Ungraded writing activities will also occur outside of class. Because students are often intimidated by essay exams, one practice essay question will be posted on Blackboard each week. Students must write answers to at least six of the questions throughout the semester. Although their answers won't be graded, instructors will give feedback about one positive aspect and one major issue that needs improvement.</p> <p>Credit (not a grade) will be given for many, though not for all, ungraded writing activities. Giving credit for some ungraded writing activities will encourage students to take the opportunity seriously.</p>

1. The writing activities should be an integral part of the course and should be designed so that students will receive active instruction in disciplinary writing.
2. Students will write the equivalent of at least 15 pages of graded assignments over the course of the semester.
3. Each Writing Intensive course will require multiple types of writing. Writing assignments might include correspondence, memoranda, proposals, progress reports, research reports, work-logs, site descriptions, observations, case studies, lab reports, creative writing, problem-solving, or computer programming, as well as other forms of course-related writing.
4. The graded assignments, consisting of multiple types of writing, will constitute a significant portion (at least 50 percent) of the final grade for the course; the grade on each assignment will reflect effective and correct written expression as well as knowledge of content.
5. On some graded assignments, students will be provided an opportunity to produce multiple drafts, in order to learn that writing is a process as well as a tool for invention and discovery. Students will get feedback from the instructor on those early drafts of written work before the grade is assigned.
6. Each Writing Intensive course will also provide an opportunity for students to engage in ungraded assignments, such as writing-to-learn activities, in order to practice writing and also to become actively engaged in processing the information that is presented in class or in a textbook. Informal journal writing is another useful means of developing students' critical thinking skills.

## **SAMPLE ASSIGNMENTS**

Include here at least two sample assignments: one formal, graded assignment, and one informal, ungraded assignment. For each assignment:

- Provide the information that will be given to students when the assignment is given,
- Clearly describe how each assignment will be evaluated and/or responded to, and
- Indicate how each sample assignment is connected to course objectives or learning outcomes.

To include more sample assignments, copy and paste the appropriate section below.

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## **FORMAL, GRADED ASSIGNMENT**

Student Assignment Sheet (paste the assignment handout given to students into the gray box below)

Please see the attached assignment sheet and evaluation criteria on page 8.

How will this assignment be evaluated and/or responded to?

Students will have the opportunity to submit a draft and multiple rewrites. The draft will be evaluated by the instructor as well as by peers. Each rewrite will be further evaluated by the instructor.

To evaluate drafts, the instructor will use the “evaluation criteria for draft” checklist (attached). If each of the 25 elements on the checklist is included in the draft, the student will receive the full 25 points. One point will be deducted for each missing element. The purpose of the checklist is to ensure that each student submits a complete draft, so that the instructor can make substantive comments about parts that need improvement.

Drafts will also receive comments from other students. The student peer review has two purposes. First, students will learn evaluation skills that they can apply to improve their own writing. Second, each student will benefit from receiving helpful comments from another student. Students will be given questions to guide them as they conduct the peer reviews, so that reviews will be specific and helpful.

After students have received comments from the instructor and from peers, they will rewrite the paper. Rewrites will be evaluated with the attached "evaluation criteria for rewrite," which includes content, grammar, and style. Students who make an appointment to individually discuss the graded paper with the instructor will have the opportunity to further rewrite and improve the grade.

How is this assignment connected to course objectives or learning outcomes?

Because students will write this paper based upon an experiment that they design, with data they collect, analyze, and compare to the scientific literature, the assignment addresses learning outcomes 4, 5, 6, and 7 (on the first page of the syllabus).

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## **INFORMAL, UNGRADED ASSIGNMENT**

Student Assignment Sheet (paste the assignment handout given to students into the gray box below)

Please see the attached assignment sheet on page 15.

How will this assignment be evaluated and/or responded to?

Students will trade papers with a classmate and discuss the positive aspect of each summary and how each summary can be improved. The instructor will walk around the classroom and participate in various discussions. Then, the instructor will choose a few good examples written by students and share them with the class, using those examples to explain how a good summary is written. Finally, students will compare their summaries to the summary written in the results section of Wilcove (1985). They may be surprised to find that they have written a better summary!

How is this assignment connected to course objectives or learning outcomes?

The results section of a primary research paper can be one of the trickiest sections to write. Learning outcome 7 states that students will write proficiently in a variety of discipline specific formats, including a primary research paper. (Learning outcomes are listed on p. 1 of the syllabus.)

## GRADED ASSIGNMENT DESCRIPTION, GENERAL ECOLOGY (BIO 305)

### Writing a Primary Research Paper

**TASK:** Using data collected during your group research project, write a primary research paper, with abstract, introduction, methods, results, discussion, acknowledgements, and literature cited sections.

**AUDIENCE:** The “audience” for your paper is a beginning biology student who has taken General Biology I & II but has not yet taken General Ecology (you, before you began this class). Any information that you wouldn’t expect a typical beginning biology student to know must be supported by a citation- it *cannot* be assumed to be “general knowledge.” (If in doubt, it is probably best to provide a citation.)

**PURPOSE:** There are several purposes for this assignment.

1. Interpret the data you collected, based upon your knowledge of ecology.
2. Conduct a search of the primary literature to find research articles related to your research.
3. Compare your data to that published in the primary literature.
4. Write a primary research paper for *your* data, with abstract, introduction, methods, results, discussion, acknowledgements, and literature cited sections.

**FORMAT:** A primary research paper explains why you did the investigation, how you did it, what you found, and whether your findings were significant and useful. This information is explained in the following sections: 1) abstract, 2) introduction, 3) methods, 4) results, 5) discussion, 6) acknowledgements, and 7) literature cited. Write in an active voice. **Total length: 7-9 pages.**

1. The **abstract**, a summary of the paper, is written last. It summarizes important information from the introduction, methods, results, and discussion sections.
  2. The **introduction** contains a) justification of the importance of the research (why did you address this question?), b) background information to enable the reader to understand the question being investigated, and ends with c) a statement of research objectives.
  3. **Methods:** This is a “cookbook” section detailing how you did your investigation. In an ecological paper, it includes a) study site description, b) field methods, and c) lab methods. You must write in *past* tense, in *paragraphs* (unlike your lab or field notebook).
  4. **Results:** This section presents the empirical results of your investigation. Graphs and tables must contain sufficient information to stand alone, including units, labels for each axis, and a table heading or figure caption. The most significant data in the graphs and tables is summarized in text. (Imagine that the figures are displayed on a screen and that you are explaining them orally, using a pointer. Your written text should transcribe what you would say orally.) Because you have already obtained your results, write in *past* tense.
  5. **Discussion:** This is the main part of the paper, the part that will be read with the most care by other professionals. Here you a) provide a scientific explanation for your data, b) compare your data to the broader scientific literature (to data found by other researchers), and c) make recommendations for future research. Some questions to ask yourself:
    - Did your investigation accomplish the purpose that you explained in your introduction? Did it answer your questions? *The key to success in the discussion section is to link your findings to the questions and problems raised in the introduction.*
    - Are your results useful? Why or why not?
    - Did you discover information that you hadn’t anticipated?
    - Was your research design appropriate? Did your investigation raise new questions? Are there implications from your results that need to be further explored?
  6. **Acknowledgements:** A brief section in which you thank those who helped or provided equipment, supplies, access to field site, etc.
  7. **Literature Cited:** Full citations are given for all sources cited within the text of the paper.
- (Modified from Bean, J. C. 1996. Engaging Ideas. Jossey-Bass: San Francisco)

**EXAMPLE:** For an example of a primary research article that you can use as a model for your paper, refer to the article you analyzed during class (Panzer & Schwartz 2006).

### RESOURCES:

1. Biological Abstracts database: <http://library.neiu.edu/doityourself/databases.html#B>
2. Writing Papers in the Biological Sciences textbook, by McMillan, particularly chapters 3 (using tables and figures), 4 (writing lab reports and research papers), 6 (documenting the paper), and 7 (drafting and revising).
3. The online grammar diagnostic at <http://bcs.bedfordstmartins.com/rewriting/> will help you recognize your grammar mistakes. Click on **Exercise Central: Diagnostics**, which is in the list of items below the “Grammar + Style” heading. Then click on **Kathleen McWhorter’s Successful College Writing**, then **visit the Web site for the Second Edition** at the top of the page. Finally, click on **Grammar Diagnostic**.
4. You can receive one-on-one help during any stage of the writing process from the Writing Lab (<http://www.neiu.edu/~ewlab/>) or the Center for Academic Writing (<http://www.neiu.edu/~wip/>). Take advantage of this opportunity! Some students find single appointments to be helpful, while others make a standing appointment to meet with a writing tutor each week. To ensure that you get the help you need, make your appointment early. Bring a copy of this assignment sheet and the McMillan textbook to your appointment.

### DUE DATES:

1. Draft (25 pts.) *Complete and turn in the “checklist” along with your draft.* **DUE** \_\_\_\_\_
2. Rewrite (50 pts.) *Make improvements based on comments received.* **DUE** \_\_\_\_\_
3. Second rewrite (optional) After meeting with your instructor to discuss how to further improve your writing, you can submit another rewrite. The grade for the second rewrite will replace the grade for the first rewrite. This option requires that you make an appointment with your instructor to individually discuss your paper at least one week before the due date. **DUE** \_\_\_\_\_

### EVALUATION CRITERIA:

1. Draft: If each element on the “evaluation criteria for draft” checklist (p. 3-4 of this handout) is included in your draft, you will receive 25 pts. One pt. will be deducted for each missing element.
2. Rewrite: For the rewrite, you will be evaluated on *how well* you write the content of each element. In addition, grammar, structure, and style will account for 20% of the grade. Please see the “evaluation criteria for rewrite” on p. 5-7 of this handout.

### ADDITIONAL INFORMATION:

1. Feel free to discuss your data with your labmates or with anyone in the class. However, when it comes time to write, you must *do the writing on your own*. Plagiarism is a very serious offense. If even one sentence or long phrase is copied, whether the source is your textbook, the internet, another student, or any other source, you are committing plagiarism. (If a copied sentence or phrase is in quotes, then it’s not plagiarism. However, quotations are rarely used in scientific papers and are not to be used in your paper.) If you have questions about what constitutes plagiarism- ask!
2. A certain way to avoid plagiarism is to always write in your own words (paraphrase). However, if you follow the original phrasing too closely, you won’t be paraphrasing, but plagiarizing. To review how to paraphrase appropriately, please go to <http://bcs.bedfordstmartins.com/rewriting/> Click on “Avoiding Plagiarism Tutorial” and then “Taking Notes.” Complete the “Recognizing paraphrases” and “Writing Paraphrases” activities.
3. Grades for a late submission will be penalized 10% for each calendar day it is late.
4. Please don’t hesitate to visit my office hours or to make an appointment outside office hours, to discuss your paper during any stage of the writing process. Students who seek feedback find the writing process to be easier and produce a much better paper.

## EVALUATION CRITERIA FOR DRAFT

**Check that your draft has each of the following elements. Complete this checklist and turn in with your draft. Drafts are worth 25 points. Drafts that include each of the required elements below will receive full credit, with one point deducted for each missing element.**

**Plagiarism:** I certify that all words in this paper are my own, and understand that conducting plagiarism is a very serious offense. (In other words, appropriately summarize information that you obtain from other sources *in your own words* and provide citations.) **Sign here:** \_\_\_\_\_

### **Title**

\_\_\_\_\_ Is title complete? (Name each variable studied and the study site. Example: “Relationship between nutrient concentrations, conductivity, and benthic macroinvertebrates in the Chicago River.”)

### **Abstract**

\_\_\_\_\_ Contains 1-3 sentences summarizing introduction.

\_\_\_\_\_ Contains 1-3 sentences summarizing methods.

\_\_\_\_\_ Contains 1-3 sentences summarizing results.

\_\_\_\_\_ Contains 1-3 sentences summarizing discussion.

### **Introduction**

\_\_\_\_\_ Is sufficient background information included?

\_\_\_\_\_ Is there no extraneous information that *doesn't* add to understanding of research objective?

\_\_\_\_\_ Is importance of research explained (why this research is necessary)?

\_\_\_\_\_ Is *all* information that a typical beginning biology student would not be expected to know appropriately cited?

\_\_\_\_\_ Does introduction end with *clear, concise, and thorough* statement of the research objective(s)?

### **Methods (Write in paragraphs, just as in the rest of the paper. Write in past tense).**

\_\_\_\_\_ Description of study site: Have you described aspects of study site that could potentially affect results (e.g. habitats in which samples were collected)?

\_\_\_\_\_ Field work: Have you included all necessary information (sampling methods, equipment used, etc.) for someone to repeat experiment?

\_\_\_\_\_ Lab work: Have you included all necessary information (sampling methods, equipment used, etc.) for someone to repeat experiment? (If you identified organisms, cite taxonomic keys used.)

\_\_\_\_\_ Have you not included unnecessary information (info that *wouldn't* be necessary to know if experiment were repeated)?

### **Results**

*Text in results section (write in past tense):*

\_\_\_\_\_ Does text summarize the “main gist” of the data rather than simply repeat the data?

\_\_\_\_\_ Does text summarize only the results, without discussing the meaning of the results and without repeating the methods?

\_\_\_\_\_ Are figures and/or tables appropriately numbered and referred to in parentheses (Figure 1)?

*Figures and Tables:*

\_\_\_\_\_ Do figures (graphs, pictures, or drawings) not have a title but have a figure number and caption below the figure? Do tables have a table number and table heading at the top of the table?

\_\_\_\_\_ Can figures and tables stand alone- units given, axes labeled, etc? (The reader should be able to understand the figure or table without referring back to the text.) *Note: Writing Papers in the Biological Sciences, by McMillan, gives clear guidelines for figures and tables.*

## **Discussion**

\_\_\_\_\_ Is the scientific meaning of the data explained? (Why do you believe that you obtained the results you obtained? *Based on your scientific knowledge*, were the results as you expected?)

- *Note*: I'll be looking for depth of thought here. If you're not sure how you might interpret your data, look up appropriate terms in the glossary of your textbook and read about those factors. Do a literature search to find similar research that others have done, and read about how they interpreted their data.
- The key to success in the discussion section is to link your findings to the questions and problems raised in the introduction.

\_\_\_\_\_ If any potential problems or errors occurred that may have affected results, have you discussed them?

\_\_\_\_\_ How does your data compare to published research? Compare your data to at least **3** primary research papers. Vague statements about data in those papers will receive little to no points, while thoughtful, detailed comparisons that refer to specific data in those papers will receive more credit.

\_\_\_\_\_ What should be studied next? Were there limitations or errors in your methodology that could be addressed by future research? Or, does your data suggest a new research objective to test?

## **Acknowledgements:**

\_\_\_\_\_ Have you thanked those who provided equipment, facilities, or access to field sites? Did you thank your labmates for helping to plan the research and collecting data? Was anyone else particularly helpful?

## **Literature Cited section**

\_\_\_\_\_ Does this section include a complete citation for each source cited in the text of the paper?

## EVALUATION CRITERIA FOR REWRITE

Rewrites are worth up to 50 points. Please note that grammar, structure, and style are worth 20% of the grade.

### TITLE

**Pts. possible: 3**

- Thoroughly but concisely describes content. (3 pts.)
- Thoroughly describes content, but contains unnecessary words. (2 pts.)
- Missing a key feature (factor tested, study site location, etc.). (1 pt.)
- Title missing. (0 pts.)

### ABSTRACT

**Pts. possible: 4**

- Summarizes most important aspects of introduction, methods, results, & discussion, with flow from one section to the next. (4 pts)
- Adequate information is given, but doesn't flow well from one sentence to the next. (3 pt.)
- Summary is missing one important aspect. (2 pts.)
- Summary is missing more than one important aspect. (1 pt.)
- Abstract is missing. (0 pts.)

### INTRODUCTION

**Pts. possible: 7**

*Background information:*

- Background information necessary to understand research objective is thorough. (3 pts.)
- An important aspect is missing from the background information. (1-2 pts)
- Background information is insufficient (more than one important aspect is not included). (0 pts)

*Necessary/importance of research:*

- Necessity/importance of research is thoroughly explained (2 pts.)
- An important aspect is missing from the explanation of necessity/importance of research. (1 pt.)
- Explanation is insufficient (more than one important aspect is not included). (0 pts.)

*Statement of research objective(s):*

- Statement of research objective(s) complete, clearly stated, and concise. (2 pts)
- Information in statement of research objective(s) complete, but could be stated more clearly or in fewer words. (1 pt.)
- Statement of research objective(s) incomplete (missing a key aspect). (0 pts.)

### METHODS

**Pts. possible: 4**

- Description of study site thorough- includes information about study site that may affect results and information that helps the reader understand habitats where samples were collected. (1 pt.)
- Field methods (how samples were collected, equipment used, etc.) described. (1 pt.)
- Lab methods (how samples were analyzed in lab, equipment used, etc.). (1 pt.)
- Enough information is included to allow someone to repeat the research objectives, but extraneous, unnecessary information is not included. (1 pt.)

### RESULTS

**Pts. possible: 7**

*Tables headings/figure captions:*

- Tables and/or figures appropriately numbered with figure captions or table headings that contain all the necessary information. (2 pts.)
- Tables and/or figures inappropriately numbered or with necessary information missing from figure captions or table headings (1 pt.).
- Table headings or figure captions absent (0 pts.)

*Presentation of data in tables or figures:*

- Data presented in organized, logical form, tables and/or figures can ‘stand alone’ (e.g. axes labeled, units given, symbols explained, etc. (2 pts.)
- Data presented in organized, logical form, but tables and/or figures cannot ‘stand alone.’ (1 pt.)
- Data not presented in organized, logical form. (0 pts.)

*Text in results section:*

- Text in results section doesn't simply repeat data, but summarizes important aspects. (3 pts)
- Summary of data is complete but somewhat unclear. (2 pts)
- Important aspect missing from summary. Or, methods restated, or analysis included that belongs in discussion. (1 pt.)
- Text in results section is absent. (0 pts)

**DISCUSSION**

**Pts. possible: 12**

*Scientific explanation of data:*

- Thorough, thoughtful, and clear explanation of scientific factors that may have caused the patterns observed in your data. (4 pts.)
- Explanation of scientific factors should be more thorough (an important aspect is missing from explanation or a portion of explanation is unclear). (2-3 pts.)
- Explanation of scientific factors is insufficient (more than 1 important aspect is missing or unclear). (0-1 pts.)

*Comparison of data to at least 3 primary research papers in published literature:*

- Comparison is detailed, thoughtful, and thorough (5-6 pts.)
- Comparison is detailed, but could be more thoughtful. (3-4 pts.)
- Comparison is vague (your data is not specifically compared to their data.) (1-2 pts.)
- Comparison is insufficient (0 pts.)

*Suggestions for future research:*

- Suggestions given for future research are thoughtful and based upon your data and/or limitations of the current study. (2 pts.)
- Suggestions given for future research are vague or not based upon your data or limitations of the current study. (1 pt.)
- Suggestions are not given for future research. (0 pts.)

**ACKNOWLEDGEMENTS**

**Pts. possible: 1**

- Appropriate information included (labmates who helped, institutions or individuals providing access to field sites, facilities, equipment, etc.) (1 pt.)
- Information lacking or inappropriate. (0 pts.)

**LITERATURE CITED**

**Pts. possible: 2**

- Citations in literature cited section and in text of paper are in correct format. (2 pts.)
- Citations included in literature cited section and in text of paper, but format has incorrect aspects. (1 pt.)
- Some citations missing from text of paper or from literature cited section (1 pt.)

## OVERALL GRAMMAR, STRUCTURE, & STYLE

Pts. possible: 10

### *Resources to help you improve grammar, structure and style:*

- Complete the online grammar diagnostic at <http://bcs.bedfordstmartins.com/rewriting/> to help you recognize common mistakes you make. Click on **Exercise Central: Diagnostics**, which is in the list of items below the “Grammar + Style” heading. Then click on **Kathleen McWhorter’s Successful College Writing**, then click on **visit the Web site for the Second Edition** at the top of the page. Finally, click on **Grammar Diagnostic**.
- Read chapter 7 of your McMillan textbook, which gives guidelines for revising your writing to be as clear and concise as possible.
- Take advantage of free, one-on-one instruction with grammar, structure, and style from the Writing Lab (<http://www.neiu.edu/~ewlab/>) or the Center for Academic Writing (<http://www.neiu.edu/~wip/>).

### *Structure:*

- Each paragraph has a topic sentence, with every sentence in that paragraph related to the topic sentence. Each sentence in a paragraph flows from the previous sentence, with appropriate transitions from one paragraph to the next. (2 pts.)
- In some parts of paper, ideas jump around (aren't properly separated into paragraphs with topic sentences, or without transitions from one paragraph to the next). Or, there are jumps of logic within a paragraph (each sentence doesn't flow from the last or there are sentences that don't relate to the topic sentence). (1 pt.)
- Structural problems described above aren't rare but common (occurring in 3 or more places in paper). (0 pts.)

### *Grammar:*

- Written primarily with an active voice. Grammar mistakes are rare (1-2 in entire paper). (2 pts.)
- Written primarily with a passive voice, or grammar mistakes are common (3-5 in paper). (1 pt.)
- Written primarily with a passive voice and grammar mistakes are frequent (>5 in paper). (0 pts.)

### *Overall conciseness:*

- Language is concise throughout. (2 pts.)
- Language is overly wordy in *some* of paper. (1 pt.)
- Language is overly wordy in *much* of paper (in three or more places in paper). (0 pts.)

### *Overall clarity:*

- Explanations are clear (no jumps in logic) throughout. (2 pts.)
- Explanations are unclear (jumps in logic) in *some* of paper. (1 pt.)
- Explanations are unclear (jumps in logic) in *much* of paper (in three or more places in paper). (0 pts.)

### *Audience:*

- Explanations given without jargon so that a typical beginning biology student could understand. (2 pts.)
- *Some* of paper is not written in language that a typical beginning biology student could understand. (1 pt.)
- *Much* of paper is not written in language that a typical beginning biology student could understand (in three or more places in paper). (0 pts.)

**TOTAL PTS. POSSIBLE: 50**

## UNGRADED ASSIGNMENT, GENERAL ECOLOGY (BIO 305)

### Writing the Results Section of a Primary Research Paper

The results section of a primary research paper can be the trickiest part to write. In addition to presenting data in graphs or tables, you will write text that summarizes the data. Rather than repeating every data point, summarize the “main gist” of the data.

Study the graph below, taken from Wilcove (1985).

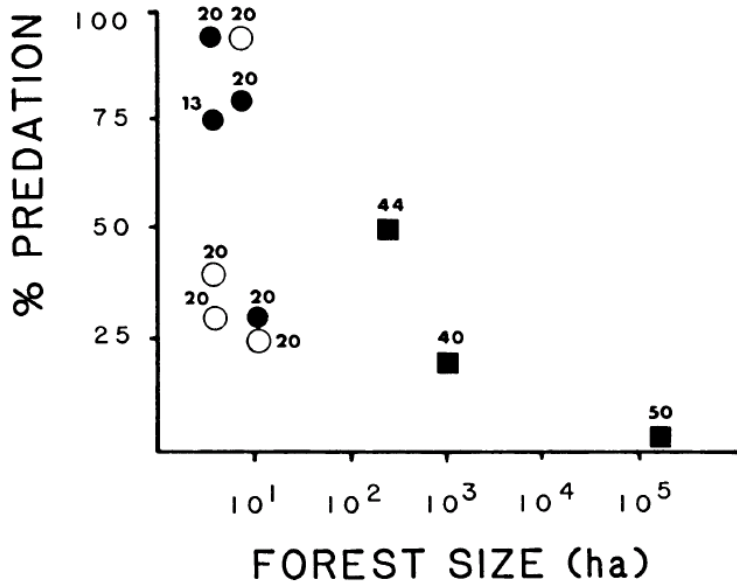


FIG. 1. Percentage of nests preyed upon as a function of forest size. ■ large forest tracts, ○ rural fragments, ● suburban fragments. The number above each point is the number of experimental nests.

1. Write text for the results section that summarizes the main trends in the data shown in the graph. (Imagine that you are explaining the most important data in this graph to a friend.)
2. Another challenge of a results section is that the summary must be written concisely. Try to revise the text you wrote so that it states the same information, but in fewer words.
3. Trade papers with a classmate. How were your summaries similar? How were they different? Now that you've discussed your summary with a classmate, how would you rewrite it further?
4. Compare your summary to the summary written in the results section of Wilcove (1985). Which do you prefer?

#### Literature Cited:

Wilcove, D. S. 1985. Nest predation in forest tracts and the decline of migratory songbirds. *Ecology* 66: 1211-1214.