*Bio Majors elective, with Companion Laboratory course (Bio 424L 2 cr hrs)*

# Instructor

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| **Prof. Marcus Jorgensen,** mjorgensen@sycamores.indstate.edu    ***Meeting Times*** | *Office Hrs*: Tues/Thurs 12-1 , Sci 346B |
| ***Lecture:*** *Mon and Wed 10:00 – 10:50 am*    ***Course Objectives*** |  |

This course integrates ornithological biology (including ecology, developmental biology, evolution, and physiology) to explore adaptation and life existence of diapsid birds. This course provides a general overview of the zoology of birds including aspects of their evolutionary history, taxonomy, anatomy, physiology, ecology, behavior, and natural history. The emphasis is on birdsong, flight mechanics, reproduction, behavior and future implications hypothesized in current research. Students will be expected to identify birds based on phenotype and birdsong, including phenotypic plasticity in sex differences.

***Course Outcomes:***

Assuming you fulfill the expectations in this syllabus, you will be able to:

1. Describe the solutions employed by different species of birds to shared environmental challenges (i.e., adaptations) and explain how these environmental challenges shaped morphology, life history, and behavior.
2. Identify species and geographic ranges.
3. Categorize note-specific calling behavior (i.e., alarm calls, reproductive song)
4. Use of field guide, equipment, and textbook to observe and identify species.
5. Justify how data from scientific studies on birds is relevant ecological, physiological, developmental, and evolutionary concepts to modern day species.

# Texts

Dunn & Alderfer. 2017. *National Geographic Field Guide to the Birds of North America*, 7th ed, National Geographic Partners, LLC (REQUIRED)

Frank B. Gill. 2006. *Ornithology*, 4th ed, W. H. Freeman

Additional references from the primary literature will be made available as pdfs.

***How to use the Readings:***

* The structure of the lecture parallels that of the book.
* With a few exceptions, we will cover a chapter each lecture (typically 10 -20 pages each chapter, including many figures and pictures).
* Keep up with the reading. Ideally, read before lecture and then again, using the lecture to guide what you should focus on.
* The textbook and field guide will correlate with species covered in lecture. Use these as study resources to familiarize yourself with species identification and range maps.

# Course Requirements

***Student Learning Assessment (Point distribution)*:**

*NOTE*: If changes happen, I will make an announcement in class and provide a new grade breakdown on Blackboard. As the table below indicates, there are 500 semester points available. There is no extra credit because of the diversity of assessments provided. Letter Grades for the semester course will be distributed as follows: ≥90% = **A**; 80–89% = **B**; 70–79% = **C**; 60–69% = **D**; ≤59% = **F**

Plus and minus grades will be assigned as follows: percentages ending with 8 > will be given a plus (e.g., 88–89% = B+); percentages ending with 1 or 0 will be given a minus (e.g., 80–81% = B-). Grades will not be curved.

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|  | **#** | **pts@** | **Points** | **%** | = 5% |
| **SPECIES IDENTIFICATION QUIZ 1 per ~ class** | 25 | 1 | **25** | 5.0% |
| **TERM PAPER** | 1 |  | **100** | 20.0% |
| *Outline & 5 refs* - DUE Wed Sept 18 | *1* | *20* |  |  |
| *Annotated Bibliography (15 refs)* - DUE Wed Oct 16 | *1* | *20* |  |  |
| *Draft –* DUE Wed Nov 6 | *1* | *20* |  |  |
| *Peer Evaluation* - DUE Wed Nov 20 | *1* | *15* |  |  |
| *Revised Term Paper –* DUE Fri Dec 6 | *1* | *25* |  |  |
| **DISCUSSION & SUMMARY Sheet** Class paper (pdf) | 2 | 10 | **20** | 4.0% |
| **EXAM 1** |  |  | **80** | 16.0% |
| **EXAM 2** |  |  | **100** | 20.0% | *Exams* |
| **EXAM 3** in *final exam session* |  |  | **150** | 30.0% | *66.0%* |
| **PARTICIPATION** (questions, answers) daily, starting 8/28 |  |  | **25** | 5.0% |  |
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| **Total Points Possible:** |  |  | **500** | 100.0% |

There will not be any extra credit.

**SPECIES IDENTIFICATION QUIZZES (5%)**: These will be quizzes similar to exam format but low point value, to help you keep up with species covered as the course progresses. A study guide will be released for each exam. Typically these will be given at the beginning of each class and count into the participation grade.

**TERM PAPER (20%):** *Detailed instructions will be provided in a handout for the Review Paper***.**  In brief, it should focus on a specific topic, such as “adaptations of food-caching for Carolina chickadees”. There are FIVE deadlines associated with the term paper (see table above, and the Schedule). In sum, this is 20% of your semester grade. The paper must be a minimum of 15 pages long, double-spaced exclusive of any figures or list of citations.

1. Outline & 5 references: This is to make sure you have a good topic and appropriate types of references to use. ALL references must be from the “primary literature” (i.e. original research (*not* a review) and published within the last 15 years. You may use a review paper when you write the draft, to help you summarize older knowledge. But the bulk of your paper must be your consideration of the newer literature. Your textbook is an excellent source for ideas.
2. Annotated Bibliography: (15 paper references).This list is of the papers you have found (more can be added) relevant to your topic. Your annotation should be 1-4 sentences (or more) for each reference, describing the key results, with reference to your term paper topic.
3. Draft: A specific RUBRIC will be provided.
4. Peer Evaluation: These first drafts will be edited and reviewed by a classmate; Dr. Hews will assign this. The evaluation will be done as if you are an editor- correcting errors, looking for organizational problems (sentences, paragraphs out of place or missing) or unclear writing. If you have never done this, you will be surprised at how much easier it is to evaluate someone else’s writing, instead of yours (as you are too familiar with it). A specific rubric will be provided. Evaluators will not be assigning grades, but provide a critical reading for improvement.
5. Final Version: You will be graded on your ability to achieve the following: (1) **synthesize** the information (**50%**) , which includes making the topic interesting to the reader and providing a thorough review of the relevant literature in your own words; (2) **style** (**25%**), which includes providing a logical flow of ideas, writing with clarity, being concise, and using appropriate terminology and (3) **mechanics** (**25%**), including spelling (have it reviewed at the Writing Center), punctuation, grammar, sentence structure, lack of “wordiness”, and following directions, etc. A specific rubric will be provided. The writing style should be similar to the scientific articles that will be covered throughout the course.

**DISCUSSION & SUMMARY SHEET for CLASS PAPERS** (pdfs) (**4%**). Twice in the semester (**Oct 25, Nov 13**) we will spend the entire class period discussing a paper from the primary literature (i.e. an original research paper), such as the papers that you will be reading for your term paper. The discussion paper will be posted in BlackBoard the week before the class meets. For each paper, you will have a Summary Sheet, which has a series of questions/topics that will guide you through the reading. You will use this sheet to write (or type) all key points about the paper (8 points), and you will have it completed so that you can more-easily participate in the discussion (2 pts).

**EXAMS (66%)**: There are two during the semester (non-comprehensive) and a third that will take place during the final exam period. Each exam covers the lecture and reading material since the previous exam. The Final Exam will include the material since Exam 2, and also will have some overall (cumulative) questions that synthesize material from the entire semester. For example, a question might ask you to discuss the evolution of features that created the diapsid lineage of birds and how these features play into modern bird behavior. The exams will include matching, fill-in, multiple choice, short answer, and longer essay questions. No make-up exams will be given, unless an excused illness (e.g., a Doctor’s note)is provided.

**CLASS PARTICIPATION (5%):** Daily points are to encourage your engagement with the material as it is being presented. Participation includes asking relevant questions and/or answering questions that I pose to the class.

# Policies on Assignment Due Dates and Academic Honesty

All assignments must be turned in **on time** on the due date. Late assignments will be docked **one full letter grade** for each day they are late. There are **no** “**extra credit**” assignments.

As per ISU policy, cheating and plagiarism will not be tolerated. If you are caught cheating or plagiarizing, you will receive a **failing grade** **for the assignment** and be reported to the university for appropriate disciplinary action.

***UNIVERSITY POLICY STATEMENTS:***

**Distractions:** Talking, cell phone sounds, etc. are distracting and interfere with learning. Be respectful of your classmates and professor; put phones away and do not talk during class.

**ACADEMIC INTEGRITY** **STATEMENT:**

* Academic dishonesty undermines the bonds of trust and honesty between members of the community. It defrauds those who may eventually depend upon our knowledge and integrity.
* Just as I must adhere to standards of Academic Integrity, you are expected to adhere to the *Code of Student Conduct* in the Student Handbook. This gives definitions of cheating. <http://www.indstate.edu/sci/docs/CodeConduct.pdf>
* Academic dishonesty results in an automatic 0 and a letter grade of F on the assignment.
* As per university policy, depending on the extent of the violation, I may also file the *Notification of Academic Integrity Violation* form, which is an informal record of the occurrence. The report may become part of a formal record if there are subsequent accusations of additional violations while at ISU. See *Student Judicial Programs* at <http://www1.indstate.edu/sjp/>

**LAPTOP AND ELECTRONICS STATEMENT:**

* A laptop is not required for this course. Use of your laptop is permitted, as long the use is within the bounds described in the Student Code of Conduct. *Laptops are allowed for TAKING notes only.* If I receive complaints or learn that this policy is being abused, I will not allow laptop use for any student.

**SEXUAL MISCONDUCT POLICY STATEMENT:**

Indiana State University fosters a campus free of sexual misconduct including sexual harassment, sexual violence, intimate partner violence, and stalking and/or any form of sex or gender discrimination. If you disclose a potential violation of the sexual misconduct policy I will need to notify the Title IX Coordinator. To make a report or the Title IX Coordinator, visit the Equal Opportunity and Title IX website:  [http://www.indstate.edu/equalopportunity-titleix/titleix.](http://www.indstate.edu/equalopportunity-titleix/titleix)

Students who have experienced sexual misconduct are encouraged to contact confidential resources listed below (confidential means they are NOT required to report).

* The ISU Student Counseling Center – HMSU 7th Floor; 812-237-3939; [www.indstate.edu/cns](http://www.indstate.edu/cns)
* The ISU Victim Advocate – Trista Gibbons; HMSU 7th Floor; 812-237-3939(office); 812-230-3803 (cell); trista.gibbons@indstate.edu
* Campus Ministries - [http://www2.indstate.edu/sao/campusinistries.htm;](http://www2.indstate.edu/sao/campusinistries.htm) United Campus Ministries; 321 N 7th St., Terre Haute, IN 47807; 812-232-0186 [www.unitedcampusministries.org](http://www.unitedcampusministries.org/)  and ucmminister2@gmail.com

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| date | Day | **#** | **chapter** | **LECTURE TOPICS** | **Work Due** |
| 21-Aug | W | 1 | **Ch 1**  1.1 -1.3 | Major extant diapsid birds. General background on birds. Will provide many visual illustrations as a warm up to the course. |  |
| 23-Aug | F | 2 | **Ch 1**  1.4, 1.5 | Extand diapsids continued, evolutionary features from previous era vertebrate life | Quiz 1 |
| 28-Aug | W | 3 | **Ch 2** all | Development of wings | Quiz 2 |
| 30-Aug | F | 4 | **Ch 3** all | Wings continued; flight patterns | Quiz 3 |
| 4-Sep | W | 5 | **Ch 4** all | Physiological adaptations, thermic behavior | Quiz 4 |
| 6-Sep | F | 6 | **CH 5** all  **Ch 6** all | Physiological adaptations continued, respiration | Quiz 5 |
| 11-Sep | W | 7 | **Ch 7** all (txt) Fieldguide | *Passeriformes:* songbird overview | Quiz 6 |
| 13-Sep | F | 8 | **Ch** **8** all (txt), Fieldguide | *Passeriformes:* songbird overview | Quiz 7 |
| 18-Sep | W | 9 | **Ch 9** all (txt), Fieldguide | Predatory birds | KCQ - **Paper Topic Outline** |
| 20-Sep | F | 10 | **Pdf** | Asymmetrical owls: high sensory hearing | Quiz 8 |
| 25-Sep | W | 11 | **Ch11 “** | First scientific article discussion | Quiz 9 |
| 27-Sep | F | 12 | **Ch12 “** | Course review | Quiz 10 |
| 2-Oct | W | 13 |  | **EXAM 1** |  |
| 4-Oct | F | x |  | *FALL BREAK - no classes* | X |
| 9-Oct | W | 14 | **Ch 13 Ch 14** | Reproductive development, parental care | Quiz 11 |
| 11-Oct | F | 15 | **Ch 15** | Siblicide and fledging the nest | Quiz 12 |
| **16-Oct** | W | 16 | **Ch 16** | Birds of Paradise; Foraging, food-caching, hibernation | Quiz 13; **Paper Lit Review** |
| 18-Oct | F | 17 | **Ch 17** | Foraging, food-caching, hibernation continued | Quiz 14 |
| 23-Oct | W | 18 | **Ch 18** | ***Paper Discussion 1 -*** *(student lead- assigned)* | Quiz 15 |
| 25-Oct | F | 29 | ***PDF*** | *Exam 2 Review* | Quiz 16 |
| **30-Oct** | **W** | **20** |  | **EXAM 2** |  |
| 1-Nov | F | 21 | **Ch 20** | Migration | Quiz 17 |
| **6-Nov** | W | 22 | **Ch 21** | Migration continued | Quiz 18; **Term**  **Paper DRAFT** |
| 8-Nov | F | 23 | **Ch 22** | Changing migratory patterns in a changing Earth | Quiz 19 |
| 13-Nov | W | 24 | ***PDF*** | ***Paper Discussion 2 -*** *Students lead; assigned* | Quiz 20 |
| 15-Nov | F | 25 | **Ch 23** | Modern anthropogenic implications | Quiz 21 |
| **20-Nov** | W | 26 | **Ch 24** | Modern anthropogenic implications continued | Quiz 22; **Peer Review** DUE |
| 22-Nov | F | 27 | **Ch 25** | Co-evolutiponary arms races: humans, prey, and predators | Quiz 23 |
| 27 &29 | W, F | x |  | *Thanksgiving week - no classes* | X |
| 4-Dec | W | 28 | Ch 25 | Final paper review / Q& A | Quiz 24 |
| **6-Dec** | F | 29 | **Ch 26** | Final Exam Review | Quiz 25;**Term paper revised** |
| 9-Dec | Monday | |  | **EXAM 3 - 10 am to noon** |  |

**Degree and Value of Concepts and Question**

**Science Rubric**

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| **Degree of Understanding** | **Synthesis of Information** | **Resourcefulness of Supporting Details** | **Use of Terminology** | **Application of Information** |
| Shows a complete understanding of what is asked | Response demonstrates a complete understanding of information of topic | Whole and complete relation of pertinent material to integrate into the response | Use of terminology enhances the response | Complete application of information to the question that demonstrates understanding of foundational concepts |
| Shows a good understanding of what is being asked | Response demonstrates a good understanding of information on the topic | Some integration of pertinent material into the response | Use of terminology supports the response | Information has been applied to the concept of the question |
| Shows a basic understanding of what is asked | Response demonstrates a basic understanding of information on the topic | Acceptable integration of material into response | Clear presence of terminology in response | Application of the information to the concept lacks adequacy |
| Shows some understanding of what is being asked | Response addresses the question on the topic | Supporting details are minimal in question response | Absence of terminology in the response | Application absent or misunderstood |