History 5387
History of Biology
Course Syllabus

Course Description: This course provides a broad appreciation for how the field of biology has evolved. By focusing on a historical approach to the field of biology, it will allow us to investigate, in detail, the shifts in thought that have led to our current understanding of biology and the world in which we live.

Instructor: Brent Bill, Ph.D., Assistant Professor of Biology
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Office Hours: Monday 1-2PM and Tuesday 1-2PM
Email: bbill@uttyler.edu

Class time: MW 5:30-6:50
Class Location: HPR251
Course Credit: 3 hours.

Required/Recommended Materials Text: None, We will be working with classical papers in the field, so articles will be posted on Canvas.

Web Resources: Lecture slides, readings, assignments, and other materials will be available on the UT Tyler Canvas Website (https://www.uttyler.edu/canvas/). You access this website using your University ID and Password. The canvas 101 tutorial course is available on the canvas page if you have not used the system before. Additional help options are available by clicking the question mark “?” on the left side of the screen. Grades maintained in the Canvas grade book will be updated regularly. It is your responsibility to check this website often to stay abreast of the latest information for the class.

Course Learning Objectives:

“The History of Biology” is a Graduate level course that investigates the entire field of Biology by focusing on the initiation of the subspecialties starting with the advent of Scientific Method and Experimental Science and Ending with the Synthesis of new Life forms. Many of these topics are covered in undergraduate classes; however, this course will be designed to prepare students with a deeper knowledge of the topic preparing them to teach these topics in their future career. Each week the class will have 3 goals.

Goal 1: Provide an overview of the topic, with special emphasis on how Biologists approached novel problems, their motivations, failures, and finally successes that lead to dogmatic shifts that shaped our field. Students will discuss how these researchers approached problems in their field, and come to a better understanding of the process of doing science.

Goal 2: Utilizing the socratic method for assessment, the class will delve into classic papers within the field. Each paper will be critically evaluated looking at methodology, results, and conclusions. This provides students exposure to classic works, but also teaches skills evaluating current literature.
Goal 3: Students will analyze the topic further by presenting a more recent paper in the subject area to the class. They will organize their presentation in a way that summarizes the main findings and methodologies then evaluates the results. Presentation is common medium of conveying information in the field, so this is to improve further their presence in front of the audience.

Goal 4: Provide students an appreciation for past contributions, to their specific field. In a student centered approach, students will engage in a project to further investigate the field leading up to their thesis topic. They will create a document that distinguishes major contributions to their fields, synthesizing the connections between these contributions and their current work.

“We see more and farther than our predecessors, not because have keener vision or greater height, but because we are lifted up and borne aloft on their gigantic stature.”

Bernard of Chartres as Attributed by John of Salisbury in *Metalogicon*

**Evaluation:***  
**Grades:**

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<th>Attendance:</th>
<th>5%</th>
<th>90% - 100%</th>
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<tr>
<td>Participation:</td>
<td>20%</td>
<td>80% - 89%</td>
<td>B</td>
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<tr>
<td>Presentations:</td>
<td>30%</td>
<td>70% - 79%</td>
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<td>Final Paper:</td>
<td>45%</td>
<td>60% - 69%</td>
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**Participation:** Students will be given a classic paper or papers to read in the field that is listed. They are expected to have read the paper prior to their arrival at class, and be ready to discuss.

**Presentations:** Four students will present per evening in what is called a Paper blitz. Students will be assigned a topic area based on the area that we are covering in class. They will be asked to select an assigned paper in that field, and present it to the class. This should be targeted to the general biology graduate student. Each presentation should be 10 minutes long. At the end of the presentation, students in the audience will be asked to discuss the paper. Audience members will give a brief, This is what I think you said statement, and then after that the presenter can clarify any points that are unclear. The audience will then be asked to come up with things that they would like to see done differently, and experiments that they think would be interesting in the future.

Detailed instructions:

I. ARTICLE SELECTION:
The foundation of an outstanding article presentation rests on the choice of an interesting and well-written paper for discussion. I have tried to provide Interesting articles for you to use for these presentations. We will sit down with the 4 people from your week and discuss who will take each paper. 3

II. ARTICLE PRESENTATION:
Study Background: This section provides your audience with the necessary information and context for a thoughtful and critical evaluation of the article's significance. The goals are 1) to describe the rationale for and relevance of the study question, and 2) to highlight the research that led to the current set of experiments. Review the papers referenced in the study's "Background" section as well as previous work by the study's authors. It will be helpful to discuss data establishing the current knowledge in the field, as your classmates have a very diverse set of backgrounds and field of study.

Study Methodology and Results: Clearly describe the Methodology utilized. Provide enough detail, that all your classmates understand these techniques and can critically evaluate the results you present. A diagrammatic schema is easy to construct using PowerPoint software and will help to clearly illustrate treatment or complex experiments. Explain the statistical methods, obtaining assistance from a statistician if needed. Take this opportunity to verbally and graphically highlight key results from the study, with plans to expand on their significance later in your presentation.

Author's Discussion: Present the authors' conclusions and their perspective on the study results, including explanations of inconsistent or unexpected results. Consider whether the conclusions drawn are supported by the data presented.

III. ARTICLE CRITIQUE:

This component of your presentation will define the success of your presentation. Do you find errors of fact and interpretation? (This is a good one! You won't believe how often authors misinterpret or misrepresent the work of others. You can check on this by looking up for yourself the references the author cites.) Have any ideas been overemphasized or underemphasized? Should some sections of the manuscript be expanded, condensed or omitted? Are the author's statements clear? Challenge ambiguous statements. What underlying assumptions does the author have? In assessing the validity of the study, it is important to assess for potential sources of bias, including the funding sources and authors' affiliations. It is also helpful to look for accompanying editorial commentary, which can provide a unique perspective on the article and highlight controversial issues.

IV. CONCLUSIONS, IMPLICATIONS, AND FUTURE DIRECTIONS:

Restate the authors' take-home message followed by your own interpretation of the study. Provide a personal perspective, detailing why you find this paper interesting or important. Then, look forward and use this opportunity to "think outside the box." Do you envision the study results changing the landscape or redirecting research in this field? If so, how?

Students will be assessed by the instructor as well as by all their classmates on both quality of content and presentation style.

Final Paper:

Students will be expected to prepare a 15 page Literature Review (Double Spaced) on the History of their field directly leading up to a topic of their choice. I expect most students to use their thesis topics as a starting point; however, I would like it to be more focused on historical aspects of your field leading up to your thesis rather than reproducing your thesis introduction.
1) Step back and decide - who was the founder of your field? Was it one seminal work that led to their status, or was it a career of work.

2) What type of research did they build on to come to this work. What was the work that directly resulted from this work?

3) How has the field progressed? Has there been paradigm shifts in the field since its inception? If so, how did that paradigm shift alter how the field approached it science?

4) How has it led into your work (This should be the largest part of your paper)? How does your work fit into the field? How does it compare to the research that started your field in scope and topic?

5) Choose a couple scientists in your field, preferably not at UT Tyler. Email them and explain that you are graduate student working on a paper in a field in which they are an expert. Ask if they would be willing to answer a couple questions for you. 1) What motivated you to work on this topic? 2) What was the most influential paper or experiment that led them in their current direction of experimentation? Assuming your experiments were to go as planned, where do you see this field going in 10 years? 20 years?

Professionalism
Attendance: Showing up and participating in class is almost certainly required to pass this course. Missing class (especially on discussion days) will result in deduction of points. While all course material (presentations and discussion questions) will be available on Canvas following class, you should obtain notes from a classmate and then consider meeting with your instructor to discuss any unclear topics.

Respect: In this class, we will be discussing and debating some ethical issues associated with the genome. Please respect your classmates points of views and treat them as you wish to be treated. I do not tolerate disrespect (i.e. racism, genderism, personal attacks), and I reserve the right to ask you to leave the discussion or debate. If I ask you to leave, then the entirety of the points for that day will be forfeit. Depending on the offense University officials may be informed.

Non-discrimination: I do not discriminate on the basis of race, color, national origin, sex, sexual orientation, gender identity and/or expression, disability, age, religion or veteran/military status. Please feel free to speak with me privately during office hours if you feel there is any way I can make our classroom more inclusive or adaptive to your needs.

Electronic Devices: Electronic devices of any kind are prohibited during exams. They need to be kept in your bag or pockets. This includes: digital watches, phones, tablets, or laptops. The exams are not designed to determine your ability to find information, but rather to determine if you are internalizing the material and being able to apply what you have learned. If I observe the use of electronic devices during the exam, you will receive a 0 and pursuant to the University of Texas at Tyler Honor code (See below) will be reported to the University Administration.

Academic integrity: The University of Texas at Tyler's honor code compels us to: "Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do." Possible penalties of violating academic integrity may include failure of this course and University disciplinary action as described by the Manual of Policies and Procedures for Student Affairs, Chapter 8: Student Conduct and Discipline (http://www.utttyler.edu/mopp/). If you are unclear on what “cheating” includes, please consult the document linked below under University Mandated Policies.
University Mandated Policies
The following policies are mandated by the University. Text describing them can be found at:


Students Rights and Responsibilities

Campus Carry

UT Tyler a Tobacco-Free University

Grade Replacement/Forgiveness and Census Date Policies

State-Mandated Course Drop Policy

Student Accessibility and Resources

Student Absence due to Religious Observance

Student Absence for University-Sponsored Events and Activities

Social Security and FERPA Statement

Emergency Exits and Evacuation

Student Standards of Academic Conduct

UT Tyler Resources for Students (Writing Center, Tutoring Center, Counseling Center)

According to the UT Tyler Handbook of Operating Procedures: “The information contained in the course syllabus, other than the grading criteria and absence and make-up policies, may be subject to change with reasonable advance notice as long as the change is without prejudice to the students.”