**Biology II: Human Genetics – Spring 2024**

**Instructor Information**

Dr. Jeff Smith – Emeritus Director of Academic Affairs

Office- Elliott B009C

Contact – please contact me at [jsmith4@bsu.edu](mailto:jsmith4@bsu.edu) as I do not have an office phone.

Office hours – by arrangement. Zoom office hours available by request.

Best time to talk with me is before or after class.

**Course Meeting Information**

8:00 MWF (lecture) and 8:00 – 9:50 T (lab)

Class and lab will meet in B211 unless otherwise announced.

**Course Description**

Human Genetics is an introductory genetics course that examines classical Mendelian genetics and modern examples as they relate to the human genome. Specific topics include: Mendelian genetics, the inheritance patterns of genes, pedigree analysis, chromosomal aberrations, behavioral genetics, genetic screening, population genetics and modern genetic applications. The second half of the course will examine DNA, the Human Genome Project, Genomic analysis, DNA replication, Transcription, Translation and other molecular genetic topics. Laboratory activities emphasize techniques used to detect and analyze genetic information, molecular genetic techniques and a variety of other genetic applications.

**Course Goals**

The goals of this course are to:

A. Acquaint the student with principles and processes in Genetics.

B. Learn to detect and interpret patterns in the inheritance of genetic traits with an

emphasis on human examples.

C. Acquaint the student with principles and processes in molecular genetics

D. Acquaint the student with current updates in the field of Genetics.

**Suggested Student Prerequisites**

- Self-motivated and independent learner.

- 1 or 2 years of Biology.

- Algebra I or higher math background.

- Willing and able to spend the time necessary for success.

**Laboratory**

A number of laboratory exercises are planned for the course and directions will be provided. In some instances, the students will need to work on the lab assignment on their own at other times. The data may be collected, and the analysis and report will use the pooled data. Lab reports and grades will vary with the activity.

**Texts**

* Human Genetics by R. Lewis
* The Cartoon Guide to Genetics by L. Gonick and M. Wheelis
* Abraham Lincoln’s DNA and other Adventures in Genetics by P. Reilly
* Mutants by A. M. Leroi
* Other materials as assigned. (Scanned documents posted to Canvas, links to current publications etc.)

**Course Pacing**

This course will use a combination of lecture materials, class discussions, video clips etc. to present the materials. Because the field of Genetics is changing rapidly, a great deal of attention will also be given to news releases, recent publications etc. so that the materials will be as current as possible. Students are encouraged and expected to answer and ask questions and participate in discussions.

Note – there isn’t always a single “correct” answer. Your opinions count, but be respectful of the opinions of others.

**Indiana Academy Unexcused Absence Policy**

## You have made a commitment toward academic achievement by attending the Academy – both attendance and integrity are essential components to that success.

Class attendance is **mandatory**. An unexcused absence on the day of a lab will result in an **automatic** **zero** for that lab. *Missing homework during an excused absence must be made up as soon as possible. It is the student’s responsibility to make arrangements with the teacher.*

It is also important that your brain be here as well as your body. Students who fall asleep in class (I’m not \*that\* boring!) will receive either a ‘tardy’ or an ‘absent’ mark from the instructor, depending on circumstances. Make sure you avoid this by getting enough sleep the night before!

Late arrivals after 15 minutes into class-time will result in an absence for that day. However, it is better to arrive late and be counted absent than to miss all of the material for the day, especially any videos or class discussions.

**Assessments**

The name of the game in learning Genetics is "practice, practice, and practice". Because of this, there will be **weekly** summary assignments so that students can "practice" the topics presented in class. Emphasis will be on “thinking” and “justification” of answers. Pay close attention to what happens in class and take good notes. **Your course grade will come mainly from these weekly assessments.**

Lab Activities will have their own assessments although not every lab will be graded. Some lab activities will be rolled into the weekly assessments or exist just for the “experience”.

**Student Accommodation Policy**

Students possessing an educational 504 or IEP should contact the instructor as soon as possible to arrange for any accommodations that may be needed. Likewise, if you feel that you could benefit from an educational 504 or IEP, feel free to contract the instructor to this regard.

**Teacher Accommodations**

Please be aware that I wear hearing aids and may need you to repeat a verbal answer or speak a little louder especially if you are at the back of the room or are naturally soft spoken.

**Additional Assignments**

There will be a number of additional assignments (labs, Discussion Boards etc.) that will be given during the course. All of these will have their own point value added to the total points available for the course.

**Late work policy for Genetics**

All assignments are expected by class time on the due date. Any assignment will be accepted without penalty within 24 hours. For example, if an assignment is due on Friday at class time, it must be submitted by 1:00 on Saturday. If you need additional time, please make your request **BEFORE** the assignment is due. Late work will be accepted for excused absences but may not be accepted for “just being late”.

**Grading**

Grades will be calculated on the percentage of points obtained out of points available. The letter grade equivalent will be:

A = 90%, B = 80%, C = 70%, D\* = <70%. Each student starts the course will 100% or an A. The challenge is to maintain as high a percent grade as you can during the course. Students should be able to follow their grades in PowerSchool. The instructor reserves the right to use +/- modifications to final semester grades.

**Computer/Device Use Policy**

Computers and other electronic devices are encouraged for class work, note taking etc. We will be using a number of web sites during class for lab work etc. However, students are expected to close their devices when requested and stay on only authorized sites. Computer/Device use is a privilege, not a right and can be removed if abused.

### Academic Integrity Policy

Specifically for this course, cooperative group work on homework assignments is appropriate and encouraged, but simple copying of an assignment or allowing another to copy your homework without collaboration is not acceptable. **DO NOT SHARE YOUR FILES.**

If you have any questions regarding what constitutes cheating, please come to see me. In order to preserve the credibility of all students’ grades, I encourage you to tell me if you observe violations of the integrity policy.

**Academic Dishonesty Policy**

In addition, it is imperative to your continued success that you exhibit academic integrity at all times. **Academic dishonesty in any form will not be tolerated**. The student is responsible for knowing the policies and consequences as stated in the Academy handbook. This entails:

* never submitting another person’s work as your own; this includes LLM and other AI generated information (see: **LLM and other AI Fair-Use Policy**, below)
* never engage in “drylabing.” (artificially manufacturing lab data and submitting it as part of a lab report)
* following all ethical standards as described in your student handbook (see “Academic Dishonesty”)

*IMPORTANT: If you feel you have been unfairly accused of failing an academic integrity standard, you have the option and right to appeal to the Indiana Academy Academic Integrity board.*

**LLM and other AI Fair-Use Policy**

Basic AI tools (spell-check, word-count, grammar, etc.) that assist with correcting errors and gathering information about your own work is not only accepted, but also encouraged!

More advanced AI tools such as LLMs (ChatGPT, LLaMa, Phi-1, etc.) that generate information or code may be used as a starting point for research or creative projects, but generated material should not (for several reasons!) be turned in as your own work. Using these LLMs can be very useful in helping you create a project and/or learn complex topics, but diligence is required to:

* \*Completely\* verify that all information provided by the LLM is accurate (this is a major problem, especially in the sciences!). Remember that these models pull non-vetted information from the internet, which will include non-expert, and sometimes malicious, sources.

**You (and your grades) are responsible for any and all errors gathered in this manner.**

* resist turning in LLM produced material as your own work. The point of being at the Academy is to use provided information as a springboard for your own intellect and creativity. Using these tools to help you gather ideas, or to find alternate ways to express your ideas, is both welcomed and encouraged. But make sure that you are not falling for temptation to use likely-erroneous data or logic that LLMs often provide. In other words, treat LLM generated material as you would other **non-expert** sources of material.

**Presenting AI-generated material as your own work will count as plagiarism, and will be dealt with accordingly (see Academic Dishonesty Policy, above)**

**Mask Policy**

There is currently no campus wide mask-mandate, but if the CDC declares another health-emergency, and BSU puts a mask-mandate in place, this policy may change. If and when masks are required by BSU campus, the Indiana Academy will then follow the same procedure.

### Diversity and Inclusion Policy

Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge. As such, it is important to ensure that your comments and behavior in class is respectful and inclusive. Discriminatory comments or behavior will not be tolerated and may result in disciplinary action, in accordance with Indiana Academy and Ball State University policy.