

The Biology Of Childhood Learning Disorders

BIOL 104, Human Biology

I) Course Description and Learning Objectives

The Biology Of Childhood Learning Disorders combines principles from many different areas of Biology, and integrates them into a discussion of how these basic biological principles underlie some of the more common childhood learning disorders. The course will include a discussion of:

Basic cell biology, using nerve cells as a model and emphasizing the importance of good nutrition for proper brain development and cognitive function

The anatomical and functional organization of the brain, emphasizing pathways that are critical for cognitive function

Several examples of specific childhood cognitive disorders, emphasizing the biological dysfunction(s) that are responsible for the conditions

II) Course Materials

There is no required textbook. All the students' readings will be provided by Dr. Michaelis in the form of lecture notes.

Important note: Each topic to be covered corresponds to one section in the lecture notes. Each section of the lecture notes contains a set of homework questions. Each student must hand in written answers to two of the homework questions from each section of the lecture notes on the day the corresponding lecture is given. For example, answers to the questions from the section entitled Proper Nutrition Is Essential For Your Brain Cells To Function must be handed in at the beginning of class on July 1. **Please note that this means you have an assignment which is due the first day of class.**

III) Course Schedule (may change as needs arise)

| Date | Topic |
|-------------|------------------------------------------------------------------------------------|
| July 1 | Proper Nutrition Is Essential For Your Brain Cells To Function |
| July 2 | The Neuron: Structure, Function And Interactions With Its Neighbors |
| July 3 | The Functional Organization Of The Brain, Emphasizing Cognition |
| July 6 | Exam 1 |
| July 7 | Teratogens: Substances Which Induce Birth Defects When Consumed By The Mother |
| July 8 | Genetic Causes Of Childhood Learning Disorders |
| July 9 | Disorders With Multiple, Often Unknown, Causes, At Least Some Of Which Are Genetic |

IV) Grading System

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|-------------------------------------------|-------------------|
| Exams (2 exams, 50 points each) | 100 points |
| <u>Homeworks (6 sets, 20 points each)</u> | <u>120 points</u> |
| Total | 220 points |

| | |
|------------------------------|------------------------------|
| A = 92-100% = 202-220 points | C = 68-71% = 150-157 points |
| A- = 88-91% = 194-201 points | C- = 64-67% = 141-149 points |
| B+ = 84-87% = 185-193 points | D+ = 60-63% = 132-140 points |
| B = 80-83% = 176-184 points | D = 56-59% = 123-131 points |
| B- = 76-79% = 167-175 points | D- = 52-55% = 114-122 points |
| C+ = 72-75% = 158-166 points | F = < 52% = < 113 points |

Exams will include a variable combination of multiple choice, matching, short answer, and essay questions.

Each section of the lecture notes contains a set of homework questions. Each student must answer two questions from each set of homework questions. Answers to homework questions must be handed in at the beginning of class on the day the corresponding lecture is given. **Please note that this means there is an assignment due the first day.**

V) Attendance and Disciplinary Policies

A) Attendance

Because of the limited amount of class time, all students are required to attend all classes. Exceptions will be made only in the face of extraordinary circumstances beyond the student's control. Students are responsible for all material, assignments and announcements made in class, whether they were present in that class or not. It is the student's responsibility to keep abreast of any changes in exam dates, due dates for assignments, and changes in assigned course material implemented during his/her absence.

B) Academic Honesty Policy

Western Carolina University, as a community of scholarship, is also a community of honor. Faculty, staff, administrators, and students work together to achieve the highest standards of honesty and integrity. Academic dishonesty is a serious offense at Western Carolina University because it threatens the quality of scholarship and defrauds those who depend on knowledge and integrity. Academic dishonesty includes:

- a. Cheating—Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- b. Fabrication—Intentional falsification of information or citation in an academic exercise.
- c. Plagiarism—Intentionally or knowingly representing the words or ideas of someone else as one's own in an academic exercise.
- d. Facilitation of Academic Dishonesty—Intentionally or knowingly helping

or attempting to help someone else to commit an act of academic dishonesty, such as knowingly allowing another to copy information during an examination or other academic exercise.

Instructors have the right to determine the appropriate sanction or sanctions for academic dishonesty within their courses up to and including a final grade of “F” in the course. Within 5 calendar days of the event, the instructor will inform his/her department head, and the Associate Dean of the Graduate School when the student is a graduate student, in writing of the academic dishonesty charge and sanction.

C) In-Class Behavior

Students are expected to conduct themselves appropriately in class.

Cell phones should be turned Off before you get to class--not set on Silent--turned Off. The first violation of this policy will be forgiven, but any subsequent violations will result in the student's final grade being reduced by one level (i.e. B+ to B or C to C-).

Please cover your mouth when you yawn in class. It is not only rude, but extremely unattractive.

VI) Accommodations for Students with Disabilities

Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities. Students who require disability services or reasonable accommodations must identify themselves as having a disability and provide current diagnostic documentation to Disability Services. All information is confidential. Please contact Carol Mellen for more information. Phone: (828) 227-7127; E-mail:mellen@email.wcu.edu.