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| **Course title** | Developmental Neuroscience & Neuroplasticity | | | | | |
| **Course code** | PSY315 | | | | | |
| **Course type** | Elective | | | | | |
| **Level** | Undergraduate | | | | | |
| **Year / Semester** | Year 3 | | | | | |
| **Teacher’s name** | Markella Grigoriou | | | | | |
| **ECTS** | 7.5 | **Lectures / week** | 1 | **Laboratories / week** | | 0 |
| **Course purpose and objectives** | This course aims to give students a thorough understanding of the complex interactions between brain development and neural plasticity and how these relationships affect psychological processes and behavior throughout the lifespan. Students will learn about the dynamic interaction of genetics, experience, and environment in forming brain pathways and how these processes affect numerous changes in cognition, emotion, and behavior as a child through this course. | | | | | |
| **Learning outcomes** | The following learning outcomes are expected, where students will:   1. Understand the developmental phases of the brain from embryo to adulthood. 2. Analyze the roles of genetics and environmental factors in brain development and plasticity. 3. Describe the impact of brain development on cognitive functions such as language and memory. 4. Discuss the neuroplasticity mechanisms and their implications for learning, skill development, and recovery. 5. Apply knowledge of neuroplasticity to propose educational or therapeutic interventions. | | | | | |
| **Prerequisites** | PSY209 | | **Required** | | No | |
| **Course content** | This course aims to give students a thorough understanding of the complex interactions between brain development and neural plasticity and how these relationships affect psychological processes and behavior throughout the lifespan. Students will learn about the dynamic interaction of genetics, experience, and environment in forming brain pathways and how these processes affect numerous changes in cognition, emotion, and behavior as a child through this course.  Week 1: Introduction to Developmental Neuroscience  Week 2: Neural Development  Week 3: Genetic and Environmental Influences  Week 4: Neural Plasticity Mechanisms  Week 5: Sensitive Periods and Critical Periods  Week 6: Cognitive Development and Brain Changes  Week 7: Neuroplasticity in Adulthood  Week 8: Neurodevelopmental Disorders  Week 9: Aging, Neuroplasticity, and Cognitive Decline  Week 10: Applied Implications and Ethical Considerations  Week 11: Current Research and Future Directions  Week 12: Final Projects and Presentations | | | | | |
| **Teaching methodology** | Lecture | | | | | |
| **Bibliography** | Bear, M. F., Connors, B. W., & Paradiso, M. A. (2020). Neuroscience: Exploring the Brain (Enhanced Edition, 4th ed.). Jones & Bartlett Learning.  Peer-reviewed journal articles, reviews, and reputable online resources will be distributed by the lecturer throughout the course. | | | | | |
| **Assessment** | 1. Midterm & Final Exam (30% & 30%): Mid-term and final exams will be conducted covering the entire course. Both exams will include multiple-choice, short-answer, and essay questions. 2. Group assignment and presentation (20%): Assign group projects that require students to apply course concepts to real-world scenarios, such as designing educational interventions or rehabilitation strategies, which they will present. 3. Individual assignments (10%): Provide case studies related to developmental disorders or neuroplasticity interventions, where students will analyze the case, propose explanations based on course concepts, and suggest suitable interventions. 4. Presence & Participation (10%): Students should be present and actively participate in in-class discussions. | | | | | |
| **Language** | English | | | | | |