



Detailed Course Syllabus

Academic Year	2026/2027	Semester	winter
Study Program	Undergraduate University Study in Psychology	Specialization/ Major in	Year of Study 2., 3.

I. BASIC COURSE INFORMATION

Name	Epigenetics in Psychology		
Abbreviation		Code	
Status	Elective	ECTS	3
Prerequisites	none		
Total Course Workload			
Teaching Mode	Total Hours	Teaching Mode	Total Hours
Lectures	15	Seminars	15
Class Time and Place	CUC - according to published timetable		

II. TEACHING STAFF

Course Holder

Name and Surname	Jasminka Štefulj		
Academic Degree	PhD	Professional Title	Full Professor
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Office Hours	According to published timetable	Office	213

Course Collaborator

Name and Surname	Maja Žutić		
Academic Degree	PhD	Professional Title	Senior Assistant
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Office Hours	According to published timetable	Office	312

III. DETAILED COURSE INFORMATION

Teaching Language English

Course Description

This course introduces the processes through which environmental influences become biologically embedded and shape behavior. It provides an overview of key concepts in genetics and epigenetics and examines how environmental factors and life experiences influence development, mental health, and psychopathology through epigenetic mechanisms. The course also introduces key research methods in behavioral epigenetics and develops students' ability to critically evaluate current research in this field.

Expected Educational Outcomes

Students will be able to: explain and discuss the implications of epigenetics for psychology; describe key epigenetic mechanisms and explain how they contribute to behavior and mental health disorders; describe research designs and methods used in behavioral epigenetics and comment on their advantages and limitations; present a selected topic in behavioral epigenetics and critically evaluate current research in the field.

Textbooks and Materials

Required

Moore, D. S. (2015). *The Developing Genome: An Introduction to Behavioral Epigenetics* (1st ed.). Oxford University Press

Supplementary

- Montel Hayes, R., Mason, C. E., & Miller, J. J. (2025). The clinical use of epigenetics in psychiatry: a narrative review of epigenetic mechanisms, key candidate genes, and precision psychiatry. *Frontiers in Psychiatry*, 16, 1671122. <https://doi.org/10.3389/fpsyt.2025.1671122>
- Smeeth, D., Beck, S., Karam, E. G., & Pluess, M. (2021). The role of epigenetics in psychological resilience. *The Lancet Psychiatry*, 8(7), 620–629. [https://doi.org/10.1016/S2215-0366\(20\)30515-0](https://doi.org/10.1016/S2215-0366(20)30515-0)
- Aristizabal, M. J., Anreiter, I., Halldorsdottir, T., Odgers, C. L., McDade, T. W., Goldenberg, A., Mostafavi, S., Kobor, M. S., Binder, E. B., Sokolowski, M. B., & O'Donnell, K. J. (2020). Biological embedding of experience: A primer on epigenetics. *Proceedings of the National Academy of Sciences of the United States of America*, 117(38), 23261–23269. <https://doi.org/10.1073/pnas.1820838116>
- Gottschalk, M. G., Domschke, K., & Schiele, M. A. (2020). Epigenetics Underlying Susceptibility and Resilience Relating to Daily Life Stress, Work Stress, and Socioeconomic Status. *Frontiers in Psychiatry*, 11, 163. <https://doi.org/10.3389/fpsyt.2020.00163>
- Kraaijenvanger, E. J., He, Y., Spencer, H., Smith, A. K., Bos, P. A., & Boks, M. P. M. (2019). Epigenetic variability in the human oxytocin receptor (OXTR) gene: A possible pathway from early life experiences to psychopathologies. *Neuroscience and Biobehavioral Reviews*, 96, 127–142. <https://doi.org/10.1016/j.neubiorev.2018.11.016>
- Liberman, N., Wang, S. Y., & Greer, E. L. (2019). Transgenerational epigenetic inheritance: from phenomena to molecular mechanisms. *Current Opinion in Neurobiology*, 59, 189–206. <https://doi.org/10.1016/j.conb.2019.09.012>
- Moore D. S. (2017). Behavioral epigenetics. *Wiley interdisciplinary reviews. Systems Biology and Medicine*, 9(1), 10.1002/wsbm.1333. <https://doi.org/10.1002/wsbm.1333>
- Lester, B. M., Conradt, E., & Marsit, C. (2016). Introduction to the Special Section on Epigenetics. *Child Development*, 87(1), 29–37. <https://doi.org/10.1111/cdev.12489>
- Bale T. L. (2015). Epigenetic and transgenerational reprogramming of brain development. *Nature Reviews Neuroscience*, 16(6), 332–344. <https://doi.org/10.1038/nrn3818>
- Babenko, O., Kovalchuk, I., & Metz, G. A. (2015). Stress-induced perinatal and transgenerational epigenetic programming of brain development and mental health. *Neuroscience and Biobehavioral Reviews*, 48, 70–91. <https://doi.org/10.1016/j.neubiorev.2014.11.013>

Examination and Grading

To Be Passed	Yes	Exclusively Continuous Assessment	No	Included in Average Grade	Yes
Prerequisites to Obtain		Regular attendance of classes (at least 70% attendance); Fulfillment of seminar obligations;			

Signature and Take Final Exam At least 35 points from teaching activities (two colloquiums and seminar).

Examination Manner Achieving points: 1st colloquium 25 points, 2nd colloquium 25 points, seminar 20 points, and final oral exam 30 points.

Grading Manner
 excellent (5) - 90 to 100 points
 very good (4) - 80 to 89.9 points
 good (3) - 65 to 79.9 points
 pass (2) - 50 to 64.9 points
 insufficient (1) - 0 to 49.9 points

Detailed Overview of Grading within ECTS

ACTIVITY TYPE	ECTS Student Workload Coefficient	GRADE PERCENTAGE (%)
Class Attendance	0.80	0
Seminar Presentation	0.44	20
Midterm Exam	0.55	25
Midterm Exam	0.55	25
Total in Class	2.34	70
Final Exam	0.66	30
TOTAL ECTS (Classes + Final Exam)	3.00	100

Midterm Exam Dates Weeks 6. and 14.

Final Exam Dates According to published timetable

IV. WEEKLY CLASS SCHEDULE

Lectures

Week	Topic
1.	Biology and behavior: introductory lecture
2.	Introduction to genetics: genotype, phenotype, environment
3.	Foundations of modern genetics
4.	Gene expression and regulation
5.	The emergence of epigenetics
6.	1st colloquium
7.	DNA methylation and other epigenetic mechanisms
8.	Epigenetic reprogramming
9.	Epigenetics and the prenatal environment

10.	Experience-dependent epigenetic changes
11.	Epigenetic mechanisms in psychopathology
12.	Transgenerational epigenetic inheritance
13.	Research methods in behavioral epigenetics
14.	2nd colloquium
15.	Epigenetics in psychology: implications and concluding remarks

Seminars

Week	Topic
1.	Introduction to seminars
2.	Seminars related to the lecture topic
3.	Seminars related to the lecture topic
4.	Seminars related to the lecture topic
5.	Seminars related to the lecture topic
6.	1st colloquium
7.	Seminars related to the lecture topic
8.	Seminars related to the lecture topic
9.	Seminars related to the lecture topic
10.	Seminars related to the lecture topic
11.	Seminars related to the lecture topic
12.	Seminars related to the lecture topic
13.	Seminars related to the lecture topic
14.	2nd colloquium
15.	Final discussion