

# Course syllabus

Course title	Psychophysiology and eye-tracking
Instructor(s)	Anna Anzulewicz, Ph.D
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Affiliation	BabyLab, Faculty of Psychology, University of Warsaw, University of Warsaw
Course format	class + lab
Number of hours	30 hours
Number of ECTS credits	<b>3 ECTS credits</b> Time requirements (90h in total) <ul style="list-style-type: none"><li>• 30h – lectures and workshops</li><li>• 60h – individual work (preparation for classes, data analysis and presentation)</li></ul>
Brief course description	The course covers methods used in psychophysiological research, including methods for measuring electrodermal and cardiac system responses, as well as eye-tracking methods. During the course, students will learn how to properly plan and conduct experiments employing the bespoke methods, and to analyse and report the results.
Full course description	<p>The course is divided into two parts. The first one (15h) covers a variety of methods used in psychophysiological research, the second one (15h) covers eye-tracking methodology and practice.</p> <p>During the course, students will learn how to design and run psychophysiological and eye-tracking experiments, collect the data, as well as analyse and visualise the results according to the best standards.</p> <p>As a results of the course, students will gain in-depth knowledge regarding possible applications of psychophysiological and eye-tracking methodology and will be able to apply it in their own projects.</p> <p>During the class the students will:</p> <ul style="list-style-type: none"><li>- learn about advantages and limitations of different psychophysiological methods,</li><li>- design psychophysiological experiments,</li><li>- practice psychophysiological data collection,</li><li>- perform data preprocessing using dedicated Python or R libraries,</li><li>- perform statistical analysis using eyetrackingR,</li><li>- visualize the data.</li></ul>

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- present the results of the analysis.
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Learning outcomes	<ul style="list-style-type: none"> <li>- students will to discuss the basis of psychophysiological responses and the relations between mental and psychophysiological processes (K_W05, K_W08)</li> <li>- be able to test hypotheses regarding the relations between psychophysiological and mental processes (K_W01; K_W02; K_W03; K_W06; K_W07; K_U01; K_K01)</li> <li>- be able to perform psychophysiological data collection (K_K02)</li> <li>- develop the skills required to process and analyze these data (K_OU3, K_U04)</li> <li>- present results of psychophysiological experiments in written format (K_U06, K_U07)</li> </ul>
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Learning activities and teaching methods	<p>The course consists of a theoretical introduction to the abovementioned topics and hands-on workshops.</p> <p>During the course, students will gain both theoretical knowledge and practical skills that allow them to understand the advantages and limitations of psychophysiological methods.</p> <p>During the workshops, students will perform data collection and analysis of psychophysiological signals. Participants will also deliver group presentations of the results. During the course, a wide variety of teaching methods will be employed, including powerpoint presentations, movies, case studies, and group projects.</p>
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List of topics/classes and bibliography

**List of topics**

**Part 1: Psychophysiology**

1. Introduction to psychophysiology: methods, theory and practice
2. The electrodermal system: measures, paradigms, experimental designs, data preprocessing, data analysis and visualisation
3. The cardiovascular system: measures, paradigms, experimental designs, data preprocessing, data analysis and visualisation
4. Team work on projects
5. Presentations

**Part 2: Eyetracking**

6. Introduction to eye tracking: biology, neurology and psychology of eye movements
7. Eye-tracking experimental designs, paradigms and measures
8. Data collection in eye tracking
9. Data analysis of eye-tracking data
10. Team work on projects
11. Presentations

**Bibliography**

Caccioppo, J.T., Tassinari, L.G., Bernston, G.G., (2000). Handbook of

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	<p>psychophysiology. Cambridge: Cambridge University Press</p> <p>Holmqvist K., Nystrom M., Andersson R., Dewhurst R., Jarodzka H., van De Wijer J. (2015). Eye Tracking: A comprehensive guide to methods and measures. Oxford: Oxford University Press.</p>
Assessment methods and criteria	<p>For each part of the course students will be asked to:</p> <ul style="list-style-type: none"> <li>- collect and preprocess raw data from a single subject</li> <li>- perform group-level analysis</li> <li>- present the results of the experiment during a group presentation (3-4 students per group)</li> <li>- Prepare a written report describing the results of the experiment</li> </ul>
Attendance rules	<p>Presence during each of two parts of the course is required. Two unexcused absences are allowed. In case of excessive absences, students will be asked to complete additional work.</p>
Prerequisites	<p>Basic programming skills in R or Python</p> <p>Statistics and Research Design</p> <p>Statistical skills enabling one to perform and interpret repeated measures ANOVA</p>
Academic honesty	<p>Students must respect the principles of academic integrity. Cheating and plagiarism (including copying work from other students, internet or other sources) are serious violations that are punishable and instructors are required to report all cases to the administration.</p>
Remarks	<p>Any remarks you would like students to know</p>

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