

**COURSE DATA****Data Subject**

Code	33345
Name	Psychobiology of stress
Cycle	Grade
ECTS Credits	4.5
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1319 - Degree in Psychology	Faculty of Psychology and Speech Therapy	4	Second term

Subject-matter

Degree	Subject-matter	Character
1319 - Degree in Psychology	44 - Psychobiology of stress	Optional

Coordination

Name	Department
SERRANO ROSA, MIGUEL ANGEL	268 - Psychobiology

SUMMARY

The subject of Psychobiology of Stress addresses the topic of stress from an integrative, updated, and practical perspective, focusing on the response of human beings to everyday life events (work, family, social networks, etc.). Currently, the World Health Organization considers stress as an epidemic of the 21st century, and a neuroscience approach is necessary to address it. In this sense, the general stress response will be explored from its conceptualization to its evaluation, with a broad focus on how our body responds to acute or chronic psychosocial, autonomic, endocrine, and immune stressors. Additionally, a fundamental aspect for the assessment and treatment of stress will be explored: individual differences, analyzing coping strategies and styles and their effects on health from a holistic perspective. Finally, the topic of stress management will be addressed, providing guidelines for stress management and tools that enable students to intervene. Throughout the course, practical exercises will be conducted to enhance competencies in stress treatment, including intervention programs for stress reduction. All this knowledge will be related to previously acquired knowledge in the subjects of Psychoendocrinology, Physiological Psychology I and II, and Fundamentals of Psychobiology.



PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

No previous knowledge is required, involving necessarily have passed one or more materials from previous courses.

OUTCOMES

1319 - Degree in Psychology

- Students must have acquired knowledge and understanding in a specific field of study, on the basis of general secondary education and at a level that includes mainly knowledge drawn from advanced textbooks, but also some cutting-edge knowledge in their field of study.
- Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.
- Know how to provide appropriate feedback to patients.
- Be able to prepare oral and written reports.
- Know and comply with professional ethics of Psychology.
- Value the contributions made by scientific research to knowledge and professional practice.
- Promote and contribute to the health, quality of life and well-being of individuals, groups, communities and organisations.
- Know the biological foundations of stress processes.
- Be able to describe and measure cognitive, emotional, psychobiological and behavioural variables and processes related to stress.
- Be able to identify the different types of stress, as well as the main strategies for dealing with stressful situations. Identify the effects of stress on health and offer some tools to control them.



LEARNING OUTCOMES

Identify the components of psychobiological stress response

To assess the psychobiological stress response, including individual differences and coping styles.

Identify the implications of stress on health in social contexts

Identify the variables relevant to stress management

DESCRIPTION OF CONTENTS

1. Concept of stress. Classification.

Concept of stress: From homeostasis to allostasis

Models of work stress.

Types of job stressors.

Sources of information on stress

2. Psychobiological response of stress

The work stress psychobiology.

Psychological aspects: indicators and measurement

Autonomic Nervous System: indicators and measurement

Neuroendocrine System: indicators and measurement

Immune system: indicators and measurement

Integrated response to stress: overall evaluation of the response of organisms

Metabolic syndrome

Methodology: Field and laboratory

3. Individual differences and coping styles

Introduction

Styles and strategies of coping: evaluation

Individual differences: perception of stress, emotions and learning

Psychobiological indicators of stress in work context

4. Stress and health in social contexts

Stress at work: key models.

Stress and occupational settings.

Biological rhythms and shift work.

Work and family.

Stress and unemployment.

**5. Stress management**

Stress and risk prevention.

Occupational health.

Stress control methods: from prevention to intervention.

Effects of techniques in the stress management on psychobiological variables

WORKLOAD

ACTIVITY	Hours	% To be attended
Theoretical and practical classes	45,00	100
Development of group work	35,00	0
Development of individual work	10,00	0
Study and independent work	22,50	0
TOTAL	112,50	

TEACHING METHODOLOGY

Lectures given by the teacher to be developed in various issues, while promoting participatory involvement of students through the resolution of the issues that arise throughout the exhibition.

Theoretical and practical classes with audiovisual support, links to different websites with content related to this matter, textbooks and scientific articles and other readings and materials.

Scheduled tutoring individual or group to supervise practical work, guidance and resolution of doubts.

Practical sessions in laboratories and seminars aimed at applied aspects in which the student, individually or in groups, working with the material that is provided (tests, articles, scientific equipment to record variables) to achieve a goal.

EVALUATION

Student Evaluation will be based on the following sections, both in the first and second examination:

SE1 - Assessment of theoretical and practical content through oral, written, or skills performance tests. It will be conducted through an objective exam based on the content taught in class and the mandatory bibliography. This section constitutes 50% of the final grade.

SE2 - The remaining 50% can be obtained through participation in group work and class activities, assignments, and participation. This 50% is recoverable for the second examination period (i.e., if the activities/assignments are not submitted during the course, they must be submitted on the day of the second examination).



Minimum Requirements:

To pass the course, both in the first and second examination, a minimum of:

2 points (out of 5) in SE1, and

2.5 points (out of 5) in SE2 (group work and class activities) must be obtained.

However, to pass the course, a minimum of 5 out of 10 must be obtained in the final grade.

WARNING ABOUT PLAGIARISM:

Blatant copying or plagiarism of any evaluation task will result in the impossibility of passing the course, followed by appropriate disciplinary procedures.

Please note that, in accordance with Article 13(d) of the Statute of University Students (RD 1791/2010, December 30), it is the student's duty to refrain from using or cooperating in fraudulent procedures in evaluation tests, assignments, or official university documents.

During office hours, the faculty may request individual or group interviews to verify the degree of participation and achievement in the objectives set for any task performed. Failure to accept such verification will result in not passing the task or activity in question.

In case of fraudulent practices, actions will be taken as determined by the Protocol for Dealing with Fraudulent Practices at the University of Valencia (ACGUV 123/2020):
<https://www.uv.es/sgeneral/Protocols/C83sp.pdf>

GRADING SYSTEM:

The grading of the course will be subject to the provisions of the Grading Regulations of the University of Valencia (ACGUV 12/2004): http://www.uv.es/graus/normatives/Reglament_qualificacions.pdf

According to this regulation, the grade will be expressed on a numerical scale from 0 to 10 with one decimal place, using the following grading scale:

From 0 to 4.9: Fail

From 5 to 6.9: Pass

From 7 to 8.9: Good

From 9 to 10: Excellent or Excellent with honors

Only when the minimum requirements are met for each section, the respective grades will be added up. Honors will be awarded based on the number of enrolled students and only to the highest grades that exceed 9. In the event that two or more students are in the same numerical conditions to obtain honors, the tie-breaker will be determined as follows: 1) the student with the highest exam grade will receive honors, and 2) if the exam grade is the same, a test (a short question on the subject matter) will be



conducted for the tie-breaker. If the grade of this last test is also the same, the honors will be declared vacant.

In both examination periods, the grade obtained will be included in the record of the course according to the following rules:

If there is no grade for the exam section, the grade will be recorded as "NOT SUBMITTED," regardless of the rest.

If there is a grade for the exam section, and it does not meet the minimum requirements, it will be recorded as "FAIL" with a numeric grade on a scale of 0 to 10 for that section.

If there is a grade for the exam section, and it exceeds the minimum requirements, but the requirements are not met in one or more of the remaining sections, it will be recorded as "FAIL" with a numeric grade on a scale of 0 to 10 for the section in which the course was not passed.

REFERENCES

Basic

- Serrano, M. A. & Salvador, A. (2015). *Psicobiología del Estrés*. Pearson Custom.
- Serrano, M.A., Alacreu-Crespo, A. & Abad-Tortosa, D. (2016). *Prácticas de Psicobiología del Estrés*. Apunts Tirant Lo Blanch.
- Sapolsky, R.M. (2008). *¿Por qué las cebras no tienen úlcera?* Alianza.

Additional

- Chandola, T., Heraclides, A., & Kurami, M. (2010). Psychosocial biomarkers of workplace stressors. *Neuroscience and Biobehavioral Reviews*, 35, 51-57.
- Conrad, CH D (ed) *The Handbook of Stress*. Wiley-Blackwell, 2011.
- Danhof-Pont, M., Van Heen, T., & Zitman, F.G. (2011). Biomarkers in burnout: a systematic review. *Journal of Psychosomatic Research*, 70(6), 505-524.
- Everly, George S., Jr ; Lating, Jeffrey M (2019). *A clinical guide to the Treatment of the Human Stress Response*. New York. Springer.
- Fink, G. (2019). *Handbook of Stress (vol 1-4)*. San Diego. Elsevier Science & Technology.
- McEwen, B.S. and Wingfield, J.C. The concept of allostasis in biology and biomedicine. *Horm. & Behav.* 43:2-15 (2003).
- Sanacora et al. (2022). The stressed synapse 2.0: pathophysiological mechanisms in stress-related neuropsychiatric disorders. *Nature Reviews Neuroscience*, 23, 86-103.
- Sandí, C., Venero, C y Cordero, M.I. (2001). *Estrés, memoria y trastornos asociados*. Ariel Neurociencia. Barcelona



- Serrano, M.A., Moya-Albiol, L., y Salvador, A. (2008). Una perspectiva psicobiológica en el estudio del estrés. *Revista de Psicología General y Aplicada*, 61(4), 405-424.
- Serrano, M.A., Moya-Albiol, L., y Salvador, A. (2009). Estrés laboral y salud: indicadores cardiovasculares y endocrinos. *Anales de Psicología*, 25(1), 150-159.
- Stress & Health: Biological and Psychological Interactions/Lovallo WR, 2e edition 2005/Sage Publications
- Turner et al. (2020). Psychological stress reactivity and future health and disease outcomes: A systematic review of prospective evidence. *Psychoneuroendocrinology*, 114, 104599
- Vos et al., (2023). Generalizable machine learning for stress monitoring from wearable devices: A systematic literature review. *International Journal of Medical Informatics*, 173, 105026.