# COURSE GUIDE FOR
## FUNCTIONAL TEST. APPLICATION TO NUTRITION

**Academic year: 2020-2021**

(Date last update: 07/07/2020)

(Date approved in Department Council: 08/07/2020)

<table>
<thead>
<tr>
<th>MODULE</th>
<th>SUBJECT MATTER</th>
<th>YEAR</th>
<th>SEMESTER</th>
<th>CREDITS</th>
<th>TYPE</th>
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</thead>
<tbody>
<tr>
<td>Formation complements</td>
<td>Functional Test. Application to Nutrition</td>
<td>4th</td>
<td>1st</td>
<td>6 ECTS (4,5 T + 1,5 P)</td>
<td>Elective course 1 semi-virtual group</td>
</tr>
</tbody>
</table>

### TEACHING STAFF

- Alfonso Varela López (T*, C*)
- Marta de la Flor Alemany (P*)

(T*: Theory; P*: Practice; C*: Subject Coordinator)

address, telephone number, email, etc.

**DIRECCIÓN COMPLETA DE CONTACTO PARA TUTORÍAS**

(Dirección postal, teléfono, correo electrónico, etc.)

Dpt. Physiology, 1st floor, Faculty of Pharmacy, Cartuja Campus. 958243879.
Email: alvarela@ugr.es, floralemany@ugr.es

### TIMETABLE FOR TUTORIALS OR LINK TO WEBSITE

Prof. Varela López
1º C: L 9.30-11.30 h; X 9.30-13.30 h
2º C: X y V 10.30-13.30 h
Prof. de la Flor Alemany
M y J 17.00-20.00 h
https://www.ugr.es/~fisiougr/tutorias.php

### BELONGS TO UNDERGRADUATE DEGREE PROGRAMME

Grado in Human Dietetics and Nutrition

Grado en Farmacia, Biología, Bioquímica, Biotecnología, Medicina, Enfermería

### PREREQUISITES OR RECOMMENDATIONS

To have background knowledge of: Human Anatomy and Histology, Biology, Structural and Metabolic Biochemistry, Cell and Human Physiology, Human Physiology, General Chemistry, and Pathophysiology.

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1 Consult any updates in Acceso Identificado > Aplicaciones > Ordenación Docente

(ços) This course guide should be filled in according to UGR regulations on assessment of student learning:
(http://secretariageneral.ugr.es/pages/normativa/fichasugr/ncg7121/?)
A good standard of English and computer skills is also required.

**BRIEF DESCRIPTION OF CONTENT (ACCORDING TO OFFICIAL VALIDATION REPORT)**

This subject focuses on the functional tests used to assess the correct functioning of body systems (endocrine, digestive, respiratory, reproductive and nervous systems, blood and cardiocirculatory system, excretory system and maintenance of acid-base balance).

**GENERAL AND SPECIFIC COMPETENCES**

**GENERAL ABILITIES**

- CG1. To recognize the essential elements of the Dietitian-Nutritionist profession, including ethical principles, legal responsibilities and the exercise of the profession, applying the principle of social justice to professional practice and developing it with respect for people, their habits, beliefs and cultures.
- CG2. To develop the profession with respect to other health professionals, acquiring skills to work as a team.
- CG3. To recognize the need to maintain and update professional competence, paying special attention to the learning, independently and continuously, of new knowledge, products and techniques in nutrition and food, as well as the motivation for quality.
- CG12. To know the nutrients, their function in the organism, their bioavailability, the needs and recommendations, and the bases of the energy and nutritional balance.
- CG13. To integrate and evaluate the relationship between food and nutrition in health status and in pathological situations.
- CG14. To apply the scientific knowledge of physiology, physiopathology, nutrition and diet to planning and dietetic advice in individuals and communities, throughout the life cycle, both healthy and sick.
- CG15. To design and carry out protocols for assessing nutritional status, identifying nutritional risk factors.
- CG16. To interpret the nutritional diagnosis, evaluate the nutritional aspects of a clinical history and carry out the dietary action plan.
- CG29. To acquire basic training for the research activity, being able to formulate hypotheses, collect and interpret information to solve problems following the scientific method, and understanding the importance and limitations of scientific thinking in health and nutrition.

**PARTICULAR ABILITIES**

- CE1. To know the chemical, biochemical and biological foundations of application in human nutrition and dietetics.
- CE2. To know the structure and function of the human body from the molecular level to the complete organism, in the different stages of life.
- CE6. To know the bases and foundations of human nutrition and nutrition.
- CE7. To acquire teamwork skills as a unit in which the professionals and other personnel related to the diagnostic assessment and treatment of dietetics and nutrition are structured in a uni or multidisciplinary and interdisciplinary manner.
- CE32. To know the pathophysiological aspects of nutrition-related diseases.
- CE33. To identify the patient’s dietary-nutritional problems, as well as risk factors and inappropriate practices.
- CE34. To elaborate and interpret a dietary history in healthy and sick subjects. Interpret a clinical history. Understand and use the terminology used in health sciences.
- CE35. To interpret and integrate the clinical, biochemical and pharmacological data in the nutritional assessment of the patient and in their dietetic-nutritional treatment.
- CE36. To apply the bases of clinical nutrition to diet therapy.
- CE43. To manage basic tools in ICTs used in the field of Food, Nutrition and Dietetics.
**OBJECTIVES (EXPRESSED AS EXPECTED LEARNING OUTCOMES)**

The acquired knowledge will allow to know and differentiate the tests that are carried out for the specific diagnosis of an alteration of the organism. The advantages and disadvantages of each of these tests will be known, as well as the limitations and interpretation of results. The learning, therefore, will allow to determine the test of choice for each alteration. This complements the knowledge acquired in the subjects of Cell and Human Physiology, Human Physiology and Pathophysiology.

**DETAILED SYLLABUS**

**THEORY:**

**ENDOCRINE SYSTEM**
- Topic 1. Basic concepts in endocrine system exploration.
- Topic 2. Regulation of body fluid volume: exploration of ADH and aldosterone.
- Topic 5. Functional study of growth hormone secretion.
- Topic 6. Thyroid function tests.
- Topic 7. Examination of the cortico-adrenal function.

**DIGESTIVE SYSTEM**
- Topic 8. Tests to assess the motility of the digestive tract.
- Topic 12. Exploration of digestion and absorption by intestinal mucosal cells.
- Topic 13. Other diagnostic tests for gastrointestinal disorders.

**BLOOD**

**CARDIOCIRCULATORY SYSTEM**
- Topic 18.–Functional exploration of the cardiac cycle.
- Topic 19.–Functional evaluation of cardiac electrical activity: electrocardiogram.
- Topic 20.–Functional evaluation of the peripheral vascular system.

**RESPIRATORY SYSTEM**

**EXCRETOR SYSTEM**
- Topic 23. Functional tests of the renal system.

**REPRODUCTIVE SYSTEM**
- Topic 25. Examination of the testicular function.

**NERVOUS SYSTEM**
- Topic 27. Functional study of the nervous system I: exploration, analytical techniques and image analysis.

**PRACTICE:**

Laboratory work
Session 1. Electrocardiography in humans
Session 3. Study of parameters and indexes related to metabolic syndrome.

All sessions will be carried out in a resting situation and after carrying out an exercise protocol. The students must present a notebook with the results and discussion of the practices. Having passed the laboratory practice component is an essential condition to be able to pass the subject.

**BIBLIOGRAPHY**

**BASIC READING LIST**

**COMPLEMENTARY READING**
RECOMMENDED LINKS

Nervous System
Instituto Federico Olóriz
Universidad de Cornell http://www.cornell.edu/
Universidad de Montpellier http://www.iurc.montp.inserm.fr/cric/audition/

Muscles
Muscles http://www.ultranet.com/~jkimball/BiologyPages/M/Muscles.html
Physiology and Pharmacology-Simulations http://innovol.sibs.strath.ac.uk/physpharm/sims.shtml

Respiratory System
Control of Respiration http://www.healthsystem.virginia.edu/toplevel/home/home.cfm
Interpreting Spirometry http://www.vh.org/Providers/Simulations/Spirometry/InterpSpiro.html

Cardiovascular System
http://www.bumc.bu.edu/www/busm/cme/modules/cardkeaney/liplow.htm
Welcome to CVP Text & Images http://sprojects.mmip.mcgill.ca/cvp/

Hematology
Anemia_Pathophysiology, Classification, Clinical Investigation
http://www.neosoft.com/~uthman/anemia/anemia.html
ASH Educational Materials http://www.hematology.org/education/index.html
Blood Coagulation http://web.indstate.edu/thcme/mwking/blood-coagulation.html
#introBlood_Outline http://www.mc.vanderbilt.edu/histo/blood/
Bloodline http://www.bloodline.net/HematologyLinks-
AtlasandSlideshttp://cybernovae.com/hematology/atlas-and-slides.htm Hematology, Med Mark
Hematopathology Index http://www.medlib.med.utah.edu/WebPath/HEMEHTML/HEMEIDX.html
#2 Hemo Surf http://www.aum.iawf.unibe.ch/vlz/bwl/Haematologie/index.htm
Introduction to Blood Morphology http://cer.hs.washington.edu/hemecases/intro/intro.htm
Metal Complex in the Blood http://wunmr.wustl.edu/EduDev/LabTutorials/Hemoglobin/MetalComplexinBlood.html
Pathology_Hematology Procedures http://medic.med.uth.tmc.edu/path/00000286.htm

Digestive System
Diagnosis and treatment of chronic liver diseases http://www.cx.unibe.ch/ikp/lab2/index.html
Digestion http://www.sciences.sdsu.edu/Faculty/Paul.Paolini/ppp/lecture24/index.htm
GITRACT http://www.pathguy.com/lectures/guts.htm
Index of Hypertext books http://arbl.cvmbs.colostate.edu/hbooks/index.html

Renal System
Creatinine clearance http://home.eznet.net/~webtent/clcreqs.html
Medical Tests of Kidney Function [Link]

Physiology of the Kidney [Link]

Rena Function Test [Link]

# Renal Function The Kidney [Link]

Endocrinology

Endocrine Diseases [Link]

Endocrine Diseases Thyroid, parathyroid, adrenal and diabetes. [Link]

Graph Pad Radioactivity Calculator [Link]

Hormone Assays [Link]

http://arbl.cvmbs.colostate.edu/hbooks/index.htm

Index of Hypertext books [Link]

Index of — mcdb133–chapter06 [Link]

RIA Kit Protocol [Link]

SDG-Endo Pics diapositivas [Link]

Steroid hormone metabolism [Link]

TEACHING METHODOLOGY

This subject is taught in a semi-virtual group. The methodology to follow is the following:

- The theoretical content of this subject is taught during the first semester, between the months of September and December. 60% of the theoretical content is taught in face-to-face classes that will be distributed throughout the course according to the calendar published on the PRADO2 platform for this subject. With the Calendar tool of the PRADO2 platform, this timing will be reinforced and all the changes that arise will be announced. The remaining 40% of the theoretical content will be taught virtually. The student will organize himself as best he considers to access the syllabus, make consultations by the tutor through the email or the Chat tool of the PRADO2 platform, comments to the Forums available in PRADO2 within the subject profile, carry out the activities periodic and self-evaluations available on the platform, etc.

- In-person classes will allow you to acquire general knowledge of each topic and resolve common doubts.
- The carrying out of periodic activities related to the theoretical content of the different topics available on the PRADO2 platform will also be taken into account, with a specific delivery date and time limit. In addition, chats and forums will be enabled with greater participatory flexibility on the PRADO2 platform. Consequently, the active and participative attitude of the virtual student will have an impact on greater enrichment and use of the knowledge learned.
- “Chat” tool of the PRADO2 platform: this tool will be used for online explanations of topics and to answer questions. It also allows to open a fan of brainstorming on topics of interest, in real time.
- Forums: when it comes to debating topics of general interest and proposed by both the teacher / moderator and the students.
- Having passed the laboratory practices is an essential condition to pass the course; They will be carried out in the Department’s laboratory and the PRADO2 platform and / or teaching communication will be convened through the platform. After carrying them out, a report must be submitted with the results obtained.
- Tutorials: both individual (in person and via email) and collective, on topics or questions asked...
individually but of general interest expressed through the Chat tool or Forums available in PRADO within the subject profile with access to everything the world.

- Control of student participation through control of the time they have been consulting the material available on the platform and the schedule for its realization.

**ASSESSMENT (ASSESSMENT INSTRUMENTS, CRITERIA AND PERCENTAGE VALUE OF FINAL OVERALL MARK, ETC.)**

**ASSESSMENT SYSTEM: CONTINUOUS ASSESSMENT**

Before the date of each control, the teacher will explain the type of exam in class or through the PRADO2 platform. There will also be an evaluation of regular attendance, with use, to face-to-face activities scheduled throughout the course. Participation in the platform will be evaluated, through the different modalities previously proposed, as well as the activities included in each of the blocks of the subject. For the evaluation of the laboratory practices, the students will have to present a memory prepared with the results and their discussion, obtained during the activities in the laboratory.

The allocation of points in the evaluation system will be made according to the percentages:

- 65% final exam
- 20% practices
- 15% participation in PRADO2 platform and carrying out the periodic activities proposed therein.

**IMPORTANT NOTE:** The practices of the subject are in person. Having passed the laboratory practices is an essential condition to pass the course. Students who do not pass the practices will be eligible for a new evaluation that will be carried out before or coinciding with the theoretical exam of the official call (ordinary / extraordinary).

**DESCRIPTION OF THE EXERCISES WHICH WILL CONSTITUTE SINGLE FINAL ASSESSMENT AS ESTABLISHED IN UGR REGULATIONS**

According to the Regulations for the Evaluation and Qualification of Students of the University of Granada (approved in the ordinary session of the Governing Council of October 26, 2016), the completion of a single final evaluation is contemplated, which may be accepted by those students who are unable to comply with the continuous evaluation method for work reasons, health status, disability or any other duly justified reason that prevents them from following the continuous evaluation regime. To benefit from the final single evaluation, the student will request it to the Director of the Department (who will transfer the corresponding teaching staff), citing and accrediting the reasons that assist him or her for not being able to follow the continuous evaluation system. The application period will be 2 weeks from the beginning of the teaching of the subject. If exceptional circumstances occur, the calculation of the term will be made from the date of enrollment (NCG78 / 9 regulation), in which case, the student must prove this last date when the application is made. If ten days have elapsed without the student having received an express written response from the Director of the Department, the request shall be deemed to have been considered. In case of denial, the student may file, within a month, an appeal before the Rector, who may delegate to the Dean or Director of the Center, exhausting the administrative route.

The allocation of points in the evaluation system will be made according to the percentages:
• Theoretical classes: 90%
• Laboratory practices: 10%

Theory assessment of theoretical content:
Students will be evaluated by taking a final exam. The final exam will be scored out of 10 and will be passed with a grade of 5 points or higher. The theoretical subject will account for 90% of the final grade.

Practices evaluation:
Students must pass a practical exam that may consist of completing one of the practices included in the randomly selected Department practice notebook and / or answering questions asked by the teacher about the different practices that make up the aforementioned notebook. The practice mark will account for 10% of the final grade.

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<thead>
<tr>
<th>SCENARIO A (ON-CAMPUS AND REMOTE TEACHING AND LEARNING COMBINED)</th>
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<tr>
<th>TUTORIALS</th>
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<tbody>
<tr>
<td>TIMETABLE (According to Official Academic Organization Plan)</td>
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<tr>
<td>If the circumstances allow, the tutorials will be in-person, the address and hours being those listed on page 1 of this Guide.</td>
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<td>If face-to-face tutorial care is not feasible, the tutorials would be delivered electronically, with the schedules and tools described for scenario B.</td>
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<tr>
<th>MEASURES TAKEN TO ADAPT TEACHING METHODOLOGY</th>
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<tr>
<td>• Royal Decree-Law 21/2020, of June 9, on urgent measures of prevention, containment and coordination to face the health crisis caused by COVID-19, establishes in its article 9 that in educational centers, including University students must guarantee the adoption of organizational measures, avoid crowds and ensure that a safety distance is maintained, maintaining on campus teaching.</td>
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<td>• When it is not possible to maintain this safety distance, adequate hygiene measures will be observed to prevent the risks of contagion. If it is not possible to maintain social distance in the classrooms, each theory group will be divided in two and on campus teaching will be given in alternate weeks to each subgroup while the other subgroup receives teaching via streaming.</td>
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<td>• For practical teaching, the explanation of the theoretical foundations may be taught online, while the practical part will subdivide the groups to do it in person in the laboratory, keeping the distance of safety and hygiene measures.</td>
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<thead>
<tr>
<th>MEASURES TAKEN TO ADAPT ASSESSMENT (Instruments, criteria and percentage of final overall mark)</th>
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<tbody>
<tr>
<td>Ordinary assessment session</td>
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</table>
The assessment instruments, assessment criteria and percentages of the final grade would be the same as those listed on pages 7-9 of this Guide.

**Extraordinary assessment session**

The assessment instruments, assessment criteria and percentages of the final grade would be the same as those listed on pages 7-9 of this Guide.

**Single final assessment**

The assessment instruments, assessment criteria and percentages of the final grade would be the same as those listed on pages 7-9 of this Guide.

**SCENARIO B (ONCAMPUS ACTIVITY SUSPENDED)**

**TUTORIALS**

**TIMETABLE**
(According to Official Academic Organization Plan)

Tutorials are given at the same times that it was done in person. Exceptionally, when this is not possible, the students will have meetings in a new schedule from 2:30 p.m. or 7:00 p.m. In addition, emails are attended to students at any time, for specific questions.

**TOOLS FOR TUTORIALS**
(Indicate which digital tools will be used for tutorials)

- Videoconference (through Google Meet)
- Email
- Chat Tool of the PRADO2 Platform
- Forums enabled in the subject profile available on the PRADO2 Platform
- Teaching communications

**MEASURES TAKEN TO ADAPT TEACHING METHODOLOGY**

**THEORETICAL TEACHING:**
- As it is a semi-virtual subject and an important part of it is carried out through the PRADO2 platform, theoretical teaching will hardly be affected, except for the fact that face-to-face theoretical classes will be replaced by online theoretical classes by synchronous videoconference through of the Google Meet platform at the same times that they had been taught in person.

**PRACTICAL TEACHING:**
- The practical contents will be maintained and will be taught online. For this, students will be called through PRADO2 or teaching communication and a Google Meet link will be created to teach the theoretical foundations of the practical sessions that are part of the program. By this way, students will become familiar with the potential diagnosis of the different techniques used.
- Given the impossibility of obtaining real data in experimental subjects, the students, in little groups members, must prepare an explanatory memory (with results and discussion) of the physiological situation of the experimental subjects with data obtained in previous courses that will be provided to the students by the teacher. For memory preparation, the teacher will duly advise students.

**MEASURES TAKEN TO ADAPT ASSESSMENT** (Instruments, criteria and percentage of final overall mark)
Ordinary assessment session

**THEORETICAL TEACHING:**
- Online questionnaires through the PRADO-EXAMEN platform. Online questions according to the PRADO EXAMEN exam modality. The questions are ordered sequentially without being able to go back. The question banks are elaborated and carried out through PRADO-EXAMEN.

**PRACTICAL TEACHING:**
- The grade will depend on the quality of the explanatory memory (with results and discussion) of the physiological situation of the experimental subjects with the data obtained in previous courses that the teacher will provide to the students.
- Students who have not completed or have not passed the practices will be called for a practice exam on the day of the theory exam.

Both to evaluate the theoretical teaching and the practical teaching in the event of a connection failure, another time will be agreed on the same day. In the event that it fails again, another day will be agreed in the form of an individualized online oral test.

The allocation of points in the evaluation system will be made according to the percentages: 65% of the final grade will be the theoretical exam, 20% the practices and 15% continuous evaluation activities.

Extraordinary assessment session

- Online questionnaires through the PRADO-EXAMEN platform. Online questions according to the PRADO-EXAMEN exam modality. The questions are ordered sequentially without being able to go back. The question banks are elaborated and carried out through PRADO-EXAMEN.
- Both to evaluate the theoretical teaching as well as the practical teaching in the event of a connection failure, another time will be agreed on the same day. In the event that it fails again, another day will be agreed in the form of individualized online oral test. Students who have not completed or have not passed the practices will be called for a practice exam on the day of the theory exam.
- Students will always take a theory test that will be evaluated over 65%. In the rest of the sections, the students will be able to keep their mark or waive the mark of all the sections (practices, participation in the PRADO2 platform and carrying out the periodic activities proposed in it) and be re-evaluated of all of them if so they request it. The qualification that will appear in the minutes will be obtained by applying the same criteria specified in the ordinary call.

Single final assessment

- Online questionnaires through the PRADO-EXAMEN platform. Online questions according to the PRADO-EXAMEN exam modality (70% of the final grade). The questions are ordered sequentially without being able to go back. The questions are elaborated and carried out through PRADO-EXAMEN.
- Students will be called for a practical exam on the day of the theoretical exam (10% of the final grade).
- The allocation of points in the evaluation system will be made according to the percentages: 90% of the final grade will be the theoretical exam (those who pass the test must also pass an oral exam the next day) and 10% will be the practical exam.
same day through Google Meet to complete the grade up to 90%) and 10% corresponds to the practices.

- Both to evaluate the theoretical teaching as well as the practical teaching in the event of a connection failure, another time will be agreed on the same day. In case it fails again, another day will be agreed in the form of individualized online oral test.

**ADDITIONAL INFORMATION**

In the event of suspension of on campus teaching, the students of the single final evaluation may request to join virtual teaching, since the difficulties they claimed to not follow the continuous evaluation will have disappeared.