Information about the subject

Degree: Bachelor of Science Degree in Criminology

Faculty: Faculty of Legal, Economic and Social Sciences

Code: 1300208 **Name:** Techniques of Forensic Analyses

Credits: 6,00 **ECTS Year:** 2 **Semester:** 2

Module: Methodology. Scientific-technical.

Subject Matter: Forensic Science **Type:** Compulsory

Field of knowledge: Other branches

Department: -

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

1302A	Manuel Polo Cerda (Responsible Lecturer)	manuel.polo@ucv.es

Module organization

Methodology. Scientific-technical.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Social	6,00	Research Methodology and Techniques in Social Sciences	6,00	1/2
Criminalistics	18,00	Applied Criminalistics	6,00	3/2
		Criminalistics Laboratory. Scientific Police	6,00	2/2
		Documentoscopy and Graphology	6,00	4/1
Forensic Science	24,00	Forensic Psychiatry	6,00	3/1
		Human Anatomy and Physiology	6,00	1/2
		Legal Medicine	6,00	2/1
		Techniques of Forensic Analyses	6,00	2/2

Recommended knowledge

Not required.

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1   Acquiring detailed knowledge about the situations that the regulations foresee regarding the different types of death and especially the cases of suspicious and violent death .

R2   Knowing how to examine injuries caused by different types of weapons.

R3   The ability to examine the most commonly used registers in human identification, and to interpret the reports in the field of identification and criminalistics.

R4   Learning the role played in judicial processes by victims, offenders, and finally the role of the professionals involved in these processes: Security Agents, Judges, Magistrates, Prosecutors, Lawyers, Forensic Scientists, experts in the field, etc.

R5   Knowledge of the general criminal and civil legislation of the Spanish judicial system and the organizational structure of the Spanish and Valencian Community Justice Administration.

R6   Producing and distinguishing the different medical documents of medical-legal interest and their legal implications.

R7   Understanding the concepts of medical-legal information systems and their practical applications. Ability to develop forensic record-keeping systems.

R8   Learning the principles of ethics and professional performance according to the lex artis.

R9   To highlight the most important applications for the practice of Criminology.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Showing a command and understanding of knowledge in an area of study that is based on the general secondary education and that is usually at a level that implies the support on advanced textbooks but also the inclusion of knowledge from the cutting edge of their field of study.				x
CB2	Being able to apply their knowledge to their jobs or vocational activities professionally and holding the competences that are demonstrated through the elaboration and defence of arguments as well as the solution of problems within their area of study.		x		
CB3	The ability to gather and interpret relevant data (normally within their area of study) so as to make judgements that include a reflection on relevant social, scientific or ethical issues.				x
CB4	Being able to convey information, ideas, problems and solutions to a specialised or non-specialised public.		x		
CB5	Having developed the learning abilities necessary to pursue postgraduate studies with a high degree of autonomy.				x

GENERAL		Weighting			
		1	2	3	4
CG5	The capacity to obtain and manage efficiently the information from the scientific literature, specialised journals, databases and other sources.				x
CG6	The capacity to establish explanatory hypotheses, using predictive and operative relationships that offer responses to the criminal phenomenon in a criminological context.				x
CG7	The capacity to take decisions and to design programs and strategies for both prevention and treatment of the criminal phenomenon.				x

		1	2	3	4
CG16	Oral and written communication skills in the native language with regards to Criminological Science in order to present, circulate and validate the outcomes of criminological and criminalistic research both through scientific development and through the proposal of specific policies and lines of action.				x

SPECIFIC		**Weighting**			
		1	2	3	4
CE23	Knowledge and application of scientific research techniques in the medical-legal and criminalistic field, as well as the basis and preparation of various expert reports.				x
CE24	Training in the elaboration of criminologist expert reports as well as in expert intervention in the different phases of the procedures.				x

Assessment system for the acquisition of competencies and grading system

In-class teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R9	55,00%	Analysis and resolution of case studies.
R3, R9	15,00%	Attendance and participation in class.
R9	30,00%	Exam or objective test to measure obtained competences.

Observations

ObservationsAssessment techniques and instruments: tasks, cases, oral presentation of works,laboratory-classroom simulation, written test (objective test of conceptual development throughdevelopment and short questions), research work, etc ...It is required to achieve a minimum score of 5.0 out of 10 in the objective test to pass the minimumknowledge (equivalent to 30%), so that the percentages obtained from the marks of the practicalpart (55%) can be applied, as well as the mark obtained for class attendance and participation(15%), and thus obtain the final mark for the course, which must be equal to or greater than 5 out of10 after the final summation of the three assessment instruments.

Online teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3	30,00%	Final test and/or final work
R1, R2, R3	15,00%	Participation in programmed actitivies
R1, R2, R3	55,00%	Presentation of works and projects

Observations

Técnicas e instrumentos de evaluación: tareas, casos, exposición oral de trabajos, simulación delaboratorio-aula, prueba escrita (prueba objetiva de desarrollo conceptual mediante preguntas dedesarrollo y cortas), trabajo de investigación, etc…Se requiere alcanzar una puntuación mínima de 5,0 sobre 10 en la prueba objetiva para superarlos conocimientos mínimos (equivale al 30%), para que se puedan aplicar los porcentajesobtenidos de las notas de la parte práctica (55%), así como la nota obtenida por la asistencia yparticipación en clase (15%), y obtener así, la nota final

de la asignatura, que habrá de ser igual osuperior a 5 sobre 10 tras el sumatorio final de los tres instrumentos de evaluación.

MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1	Presentation of contents by the teacher, analysis of competencies, explanation and demonstration of abilities, skills and knowledge in the classroom.
M2	Specific instructions about group and individual assignments for each topic.
M3	Group work sessions supervised by the teacher. Study of legal cases, both real and fictitious, analysis, diagnosis, problems, field study, computer room, visits, data search, libraries, network, Internet, etc. Significant construction of knowledge through student interaction and activity. Critical analysis on values and social commitment.
M4	Application of interdisciplinary knowledge.
M5	Supervised monographic sessions with shared participation
M6	Personalized attention and in small groups. Period of instruction and/or orientation carried out by a tutor with the objective of reviewing and discussing the materials and topics presented in the classes, seminars, readings, completion of assignments, etc.
M7	Set of oral and/or written tests used in the initial, formative or summative evaluation of the student.
M8	Group preparation of readings, assumptions and problem -olving to present, discuss or deliver in class or tutorial.
M9	Student's study: Individual reading preparation, case studies, jurisprudence. Writings and papers to be presented or delivered in the classes or tutorials.

M17	Expository Method /Master Class

M18	Exercise and problem solving

M19	Case method

M20	Course works and tasks

M21	Project-oriented learning

M22	Guided Practice through debates, resolution of problems and exercises in the virtual classroom.

IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
In-person class M1	R1, R2, R3	15,00	0,60
Practical class M3	R1, R2, R3	30,00	1,20
Seminar M5	R3	2,50	0,10
Group work presentation M4	R4, R9	5,00	0,20
Tutorial M6	R3, R4, R9	5,00	0,20
Evaluation M7	R9	2,50	0,10
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M8	R9	30,00	1,20
Individual work M9	R1, R2, R3, R9	60,00	2,40
TOTAL		**90,00**	**3,60**

ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Master Class M17, M19	R1, R2, R3	15,00	0,60
Practical activity M18, M19, M20	R1, R2, R3	25,00	1,00
Tutorial M18	R1, R2, R3	10,00	0,40
TOTAL		**50,00**	**2,00**

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual or group work of students M20	R3	90,00	3,60
Activities through virtual resources M19	R3	2,50	0,10
Access and research on complementary contents M18, M19	R3	5,00	0,20
Individual study M17	R3	2,50	0,10
TOTAL		**100,00**	**4,00**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents

Units 1-18

Teaching unit 1. Lesson 1. Sciences and types of forensic laboratories. Legalframework in Spain. Forensic laboratories in Spain. TheEuropean Network of Forensic Laboratories (ENFSI). Teaching unit 1. Lesson 2. General organization of the forensic laboratory. Traces andbiological and non-biological signs. Personal, quality andhomogeneity of analytical skills. Teaching unit 1. Lesson 3. Collection, submission, reception, registration and custodyof samples. Chain of custody. Prevention of occupationalrisks in forensic laboratories. Teaching unit 1. Lesson 4. Specific rules for the submission of samples to the differentforensic laboratories for the study of evidence and biologicalsamples. Teaching unit 1. Lesson 5. The expert and analytical expert evidence. The analytical orlaboratory expert report. Teaching unit 2. Lesson 6. Macro and microscopic techniques. Florescence andphosphorescence (forensic lights). Forensic histopathology. Teaching unit 2. Lesson 7. Qualitative and quantitative analysis techniques(electrophoretic, colorimetric, immunoassays,spectroscopic, chromatographic, X-ray diffraction).

Teaching unit 2. Lesson 10. Techniques in Molecular Biology. Types of DNA: the geneticheritage. DNA extraction and quantification. Polymerasechain reaction (PCR). Genetic markers (STRs, SNPs,others). Databases of criminal interest. Organic Law10/2007. Teaching unit 3. Lesson 11. Biological and non-biological evidence analysis techniquesin Criminalistics. 11.1. Blood stain analysis. 11.2. Analysis ofsemen spots, saliva and other secretions. 11.3. Hair and nailanalysis. 11.4. General systematic analysis of non-biologicalevidence (fibers, glass, paints, floors, explosive remains andfires). Teaching unit 3. Lesson 12. Analysis techniques in Forensic Archeology. Exhumation,removal and referral protocols for skeletal remains to theForensic Anthropology laboratory. Teaching unit 3. Lesson 13. Analysis techniques in Forensic Anthropology. 13.1.Systematics of anthropological study in the laboratory. 13.2.Analysis of the biological profile (sex, age, height andancestral group). 13.3. Analysis of individualizingcharacteristics and bone pathology for identification. 13.4.Estimation of age in the living subject. 13.5. Analysis ofcremated human skeletal remains. Teaching unit 3. Lesson 14. Analysis techniques in forensic dentistry.

14.1. Introductionto dental identification. Reconstructive and comparativemethods. 14.2. Dental anatomy: deciduous and permanentdentition. 14.3. Dental age: chronology of the dentaleruption. 14.4. Dental notation systems: odontogram. Dentalnecroidentification using the INTERPOL dental file. 14.5.Other dental identification methods: palatoscopy, rugoscopy,cheiloscopy, radiographic overlay and analysis of the humanbite.Teaching unit 3. Lesson 15. Analysis techniques in forensic pathology. 15.1. Study ofwounds in the Criminalistics laboratory. Dynamics of theinvestigation (clothes, cutaneous plane, bone plane,instrument or weapon). 15.2 Vital and post-mortal reactions.Perimortem and postmortem wounds. 15.3. Examples:laboratory study of stab wounds, fractures and bruises,hanging grooves.Teaching unit 2. Lesson 8. Osteological and dental techniques: morphometry andodontometry. Skeletonization technique.Teaching unit 2. Lesson 9. Radiological techniques. Forensic photography andinfographics. Teaching unit 3. Lesson 16. Analysis techniques in Forensic Ballistics of effects. 16.1Ballistics and its parts. Firearms: definition, types and parts.Shooting elements. 16.2. Ballistics of effects: study ofwounds by firearm in the Criminalistics laboratory (study ofclothing, skin and bone planes). 16.3. Trigger residueanalysis techniques.Teaching unit 3. Lesson 17. Introduction to forensic entomology and other laboratoryanalysis techniques for establishing the postmortal interval.17.1. Concepts of diagnostic chronotanatodiagnostic andpostmortal interval. 17.2. Fresh corpse: introduction tothanatochemistry. 17.3. Corpse in putrefaction: introductionto forensic entomology. 17.4. Ancient corpse: datingtechniques.Teaching unit 3. Lesson 18. Analysis techniques in Forensic Genetics. 18.1. DNA andgenetic heritage. Genetic profiling and genetic databases(reminder). 18.2. Criminal area: forensic genetic analysis insamples of criminal interest. 18.3. Civil sphere: biologicalinvestigation of paternity and maternity. 18.4. Forensicgenetics in other areas: major catastrophes, multi-victimaccidents, missing persons and cases of irregular adoptionsor abduction of newborns.

Temporary organization of learning:

Block of content	Number of sessions	Hours
Units 1-18	30,00	60,00

References

BIBLIOGRAPHY

ANADÓN MJ, ROBLEDO MM (coords) (2017): Manual de Criminalística y Ciencias Forenses.Técnicas forenses aplicadas a la investigación criminal. Madrid: Editorial Tébar. 2ª edición.ANTÓN F, DE LUIS TURÉGANO JV (2004): Policía Científica. Vols. I y II. Valencia: Editorial TirantLo Blanch.BOSQUET S (2015): Criminalística Forense. Valencia: Editorial Tirant Lo Blanch.BURNS KR (2008): Manual de Antropología Forense. Barcelona: Edicions Bellaterra.CRESPILLO M, BARRIO PA (2019): Genética Forense. Del laboratorio a los tribunales.Ediciones Díaz de Santos, S.A.DI MAIO VJM, DANA SE (2003): Manual de Patología Forense. Madrid: Ediciones Díaz deSantos.ETXEBERRIA F (2003): Lesiones por armas de fuego. Problemas médico-forenses. Kirurgia, nº4. Disponible: http://www.sc.ehu.es/scrwwwsr/kirurgia/Kirurgia2003e/Armasfuego.htmERICKSON E. (2013): Criminalistics Laboratory Manual. The Basics of Forensic Investigation.Taylor & Francis Inc, United States-Routledge.GARAMENDI PM, LÓPEZ-ALCARAZ M (2019): Situación actual de la estimación forense de laedad en menores extranjeros no acompañados en España. Revista Española de Medicina Legal45:133-135.GISBERT CALABUIG JA. (2018): Medicina legal y toxicología. 6ª ed. Barcelona: Masson S.A. 7ªedición.HOSPITAL A. (2017): Métodos de identificación odontológica. En: XI Curso de PatologíaForense. González J, Gutiérrez-Hoyos A (eds). Universidad de La Rioja. Logroño, pp. 83-100.MAGAÑA C. (2002): La entomología forense y su aplicación a la Medicina Legal. Data de lamuerte. Revista del Centro de Estudios Jurídicos de la Administración de Justicia , nº 1, 93-110.POLO CERDÁ M, GARCÍA-PRÓSPER E, CRESPO ALONSO S, GALTÉS I, MARQUEZ-GRANTN, GARCÍA-RUBIO A, ARMENTANO N, MUÑOZ HERNÁNDEZ V (2018): Protocolo debúsqueda, levantamiento y exhumación de restos humanos. Revista Internacional de Antropologíay Odontología Forense 1(1): 7-23.SÁNCHEZ SÁNCHEZ JA (coord.) (2015): Medicina legal y Forense. Vols. I y II. Editorial Tirant LoBlanch. Valencia.SCHMELING A. (2019): Forensic age assessment. Revista Española de Medicina Legal45:163-169.SERRULLA F. (coord.) (2013): Recomendaciones en Antropología Forense. AsociaciónEspañola de Antropología y Odontología Forense.SERRULLA F. (coord.) (2019): Armas de fuego y ciencias forenses. Edita: Asociación Galegade Médicos Forenses.VENTURA M. (2007): Manual de Medicina legal policial. Col.lecció Universitas 24. Castellón:Universitat Jaume I.VILLALAÍN JD, PUCHALT FJ (2000): Identificación antropológica policial y forense. Valencia:Editorial Tirant Lo Blanch.PCA-

PI-02-F-16 ED. 00

Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

X	Microsoft Teams

X	Kaltura

Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

| X | Microsoft Teams |
| X | Kaltura |

Explanation about the practical sessions:

2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

| X | The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus. |

| | The following changes will be made to adapt the subject's assessment to the online teaching. |

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System:

And how will online participation be valued? In many different ways, such as the following:

1) Taking into account the interventions of the students in the online classes themselves, with the corresponding records or notes.

2) Considering virtual tutorials through the UCVnet virtual Campus or online sessions through Teams developed as a group or individual tutorial.

3) Taking into account the interventions in the forum created on the UCVnet platform to raise and answer questions on the agenda.

4) Considering the emails or messages received raising questions about the subject's agenda.

ONLINE WORK

Regarding the Assessment Tools:

| X | The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus. |

| | The following changes will be made to adapt the subject's assessment to the online teaching. |

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: