



Academic year	2012-13
Subject	11009 - Spatiotemporal dynamics
Group	Group 1, 2S
Teaching guide	A
Language	English

## Subject identification

<b>Subject</b>	11009 - Spatiotemporal dynamics
<b>Credits</b>	0.75 in-class (18.75 hours) 2.25 distance (56.25 hours) 3 totals (75 hours).
<b>Group</b>	Group 1, 2S
<b>Teaching period</b>	2nd semester
<b>Teaching language</b>	English

### Lecturers

Lecturers	Timetable for student attention					
	Starting time	Finishing time	Day	Start date	Finish date	Office
Damià Agustí Gomila Villalonga	There are no defined sessions					

### Degrees where the subject is taught

Degree	Character	Academic year	Studies
Master's Degree in Physics of Complex Systems	Optional		Postgraduate degree

## Contextualisation

### Requirements

#### Recommendable

11001 - Dynamical Systems and chaos

11004 - Pattern Formation

### Skills

#### Specific

1. E9: To know stability analysis techniques and know how to build bifurcation diagrams..
2. E12: To know the essential phenomenology of pattern formation in physical, chemical or biological systems..





3. E13: To Know the multiple scales methods and how to obtain amplitude equations..

#### Generic

1. TG1: To be able to describe, both mathematically and physically, complex systems in different situations.
2. TG2: To acquire the capacity to develop a complete research plan covering from the bibliographic research and strategy to the conclusions..
3. TG3: To write and describe rigorously the research process and present the conclusions to an expert audience..

### Content

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#### Theme content

1. Global bifurcations. Homoclinic and heteroclinic orbits.
2. High codimension bifurcations.
3. Fronts and localized structures. Spatial dynamics.
4. Excitable media.
5. Numerical methods for extended systems.

### Teaching methodology

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#### In-class work activities

Modality	Name	Typ.Gr.	Description
Theory classes	Lectures	Large group (G)	Lectures on the blackboard complemented with slides.
Practical classes	Tutorials	Large group (G)	Problem solving by the teacher and students.
Assessment	Written exam	Large group (G)	Written exam.

#### Distance education work activities

Modality	Name	Description
Individual self-study	Consolidating theoretical concepts	Autonomous individual study and work to consolidate concepts and techniques explained in the lectures.
Individual self-study	Problem solving	Solving the problems and exercises given to each student.





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## Riscs específics i mesures de protecció

Les activitats d'aprenentatge d'aquesta assignatura no comporten riscos específics per a la seguretat i salut de l'alumnat i, per tant, no cal adoptar mesures de protecció especials.

## Workload estimate

Modality	Name	Hours	ECTS	%
<b>In-class work activities</b>		<b>18.75</b>	<b>0.75</b>	<b>25</b>
Theory classes	Lectures	10	0.4	13.33
Practical classes	Tutorials	6.25	0.25	8.33
Assessment	Written exam	2.5	0.1	3.33
<b>Distance education work activities</b>		<b>56.25</b>	<b>2.25</b>	<b>75</b>
Individual self-study	Consolidating theoretical concepts	28	1.12	37.33
Individual self-study	Problem solving	28.25	1.13	37.67
<b>Total</b>		<b>75</b>	<b>3</b>	<b>100</b>

At the beginning of the semester a schedule of the subject will be made available to students through the UIBdigital platform. The schedule shall at least include the dates when the continuing assessment tests will be conducted and the hand-in dates for the assignments. In addition, the lecturer shall inform students as to whether the subject work plan will be carried out through the schedule or through another way included in the Campus Extens platform.

## Student learning assessment

### Tutorials

Modality	Practical classes
Technique	Papers and projects ( <b>Non-recoverable</b> )
Description	Problem solving by the teacher and students.
Assessment criteria	Correctness of the results; quality of the explanations and interpretation of the results; quality of the written paper

Percentage of final qualification: 50% following path A





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### Written exam

Modality	Assessment
Technique	Objective tests ( <b>Non-recoverable</b> )
Description	Written exam.
Assessment criteria	Correctness of the results; quality of the explanations and interpretation of the results; quality of the written paper

Percentage of final qualification: 50% following path A

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### Resources, bibliography and additional documentation

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#### Basic bibliography

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#### Complementary bibliography

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#### Other resources

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