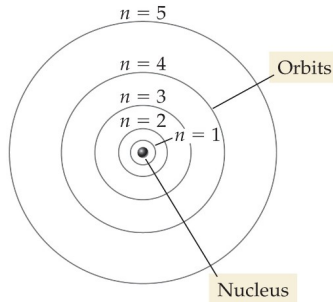


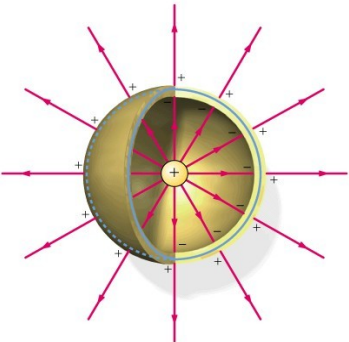
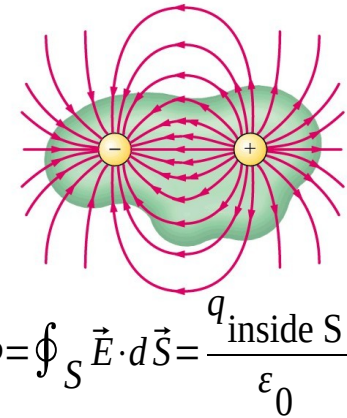
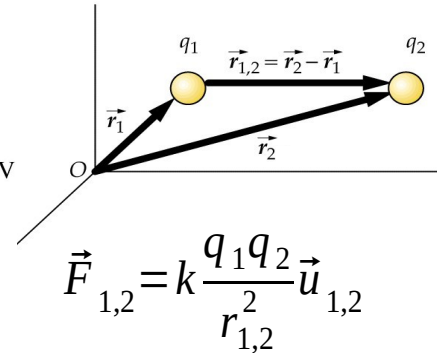
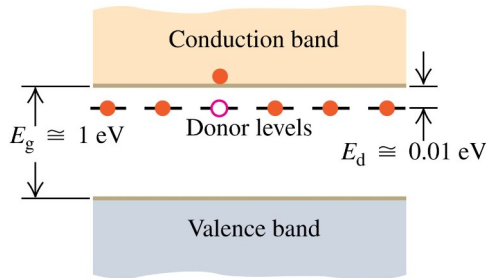
# PHYSICS I



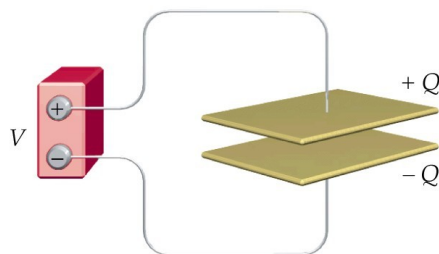
$$\Delta \vec{r} = \vec{v}_o t + \frac{1}{2} \vec{a} t^2$$



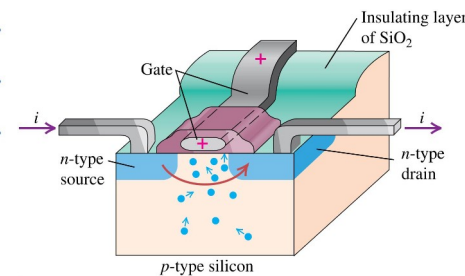
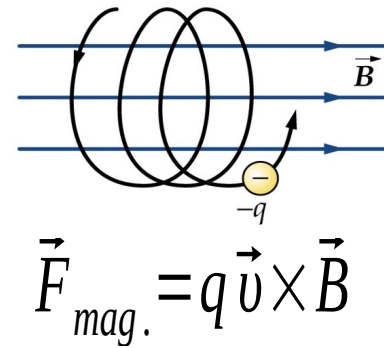
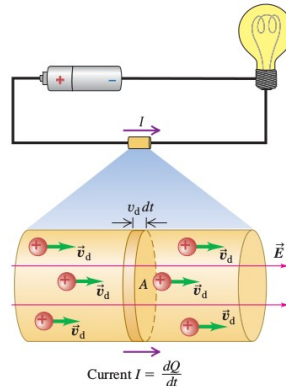
$$E_n = -\frac{me^4}{2\hbar^2} \frac{1}{n^2}$$



$$\Delta V = -\int_A^B \vec{E} \cdot d\vec{l}$$



$$C = \frac{Q}{V} = \epsilon_0 \frac{S}{d}$$



**THE PHYSICS IS THEORETICAL BUT  
THE FUN IS REAL!**

# Today

- Discuss course, objectives, learning outcomes
- Discuss schedule related issues
- Review of kinematics and dynamics (kinematic equations, Newton's laws)

# Contact details

Stavros Athanasopoulos

- E-mail: [astavros@fis.uc3m.es](mailto:astavros@fis.uc3m.es)
- Office hours: Wednesday 14:00-16:00 and Thursday 13:00-15:00
- Office: 4.0.C01 – TORRES QUEVEDO

# HOUSEKEEPING RULES

- Arrive on time!
- The course is in **ENGLISH**
- Switch off electronic devices or use flight mode
- Only one person talks at a time
- Behave...
- **Come prepared!**
- **Participate!**



# Communication

- AULA GLOBAL: <https://aulaglobal.uc3m.es>

All info and material will be uploaded to

**M-Group** (M2.218.13867-89 MAG. Physics 22/23-S1)

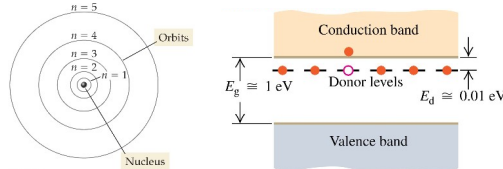
**check daily!**

# COURSE CONTENTS

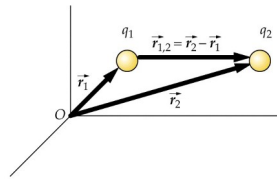


1.A review of kinematics and dynamics

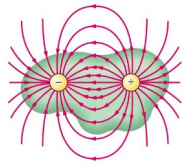
2.Atoms and solids



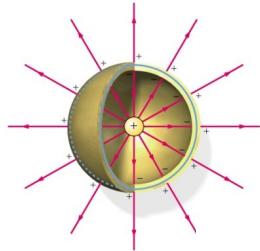
3.Coulomb's law. Electric Field



4.Gauss' law

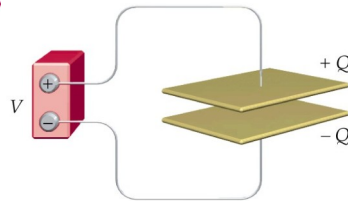


5.Electric potential

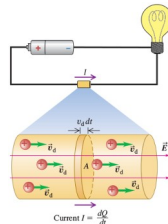


6.Conductors

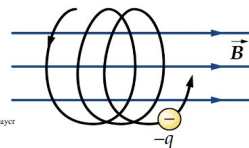
7.Capacitors and dielectrics



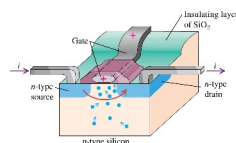
8.Electric current



9.Magnetic forces and magnetic fields



10.Semiconductor devices



# **BASIC BIBLIOGRAPHY**

## **THEORY**

**SERWAY, RA & JEWETT, JW.**

“Physics for scientists and engineers” Brooks/Cole  
Cengage Learning 2014

**TIPLER, PA**

“Physics for scientists and engineers: with modern  
physics” W.H. Freeman

# ASSESSMENT SYSTEM

## **Final exam 60% of final mark**

Problems to be solved and short theory questions

## **Activities in groups 25% of final mark**

**4 short test exams** (the three best marks will be taken into account)

## **Laboratory sessions 15% of final mark**

4 sessions (100 min. each)

attending the laboratory session and handing-in the reports is  
**compulsory**

A minimum mark of 3 (over 10) in the final exam will be required in order to calculate the final mark by using the above percentages



# SHORT TEST EXAMS: PROVISIONAL DATES

1. Week 5: Wednesday Oct 5 (group 87),  
Friday Oct 7 (groups 88, 89)
2. Week 10: Wednesday Nov 9 (group 87),  
Friday Nov 11 (groups 88, 89)
3. Week 13: Wednesday Nov 30 (group 87),  
Friday Dec 2 (groups 88, 89)
4. Week 14Ea: Thursday Dec 15 during the magistral  
class (all groups) to be confirmed...

# TUTORIALS

- All tutorials will be face to face (online booking system/15 mins slots)
- Tutorials: Wednesdays 14:00-16:00  
Thursdays 13:00-15:00  
to be confirmed...

# LABS

- Stay tuned for dates/groups (LAB 4.S.B02).
- It is mandatory to attend all 4 sessions and handle in all four reports.
- Students who have already taken this lab in the same degree **do not** need to repeat the laboratory.
- Students who have already taken this lab in the same degree **and want** to repeat it, must request the resignation of the previous grade.
- Students who have already taken this lab in another degree at UC3M do not need to repeat the laboratory, they must request its validation.
- Students who come from another university and wish to validate the lab must request it.

[https://laboratoriofisica.uc3m.es/B.inf\\_p.html](https://laboratoriofisica.uc3m.es/B.inf_p.html)

# PHYSICS EXAM:

Fraud examination (to copy) will lead to a mark of **0 in the corresponding call**, for those who copy and those who help them. The act of copying, apart from failing the corresponding call, may lead to the opening of disciplinary proceedings, whose sanctions include permanent expulsion from the University (See the *Academic Disciplinary Regulations*).