

Earth Systems



Practicalities

- Instructors:
 - Susana Custódio, sicustodio@fc.ul.pt, 8.3.05
 - Emanuel Dutra, endutra@fc.ul.pt, 1.1.06
 - Ana Amorim, aaferreira@fc.ul.pt, 2.5.04
- Formally corresponds to 3 classes:
 - Tópicos Avançados em Ciências da Terra Sólida
 - 6 ECTs, 2nd semester, S Custódio
 - Tópicos Avançados em Ciências Marinhas
 - 6 ECTs, 2nd semester, A Amorim
 - Fundamentos de Modelação do Sistema Terra
 - 6 ECTs, 1st semester, E Dutra

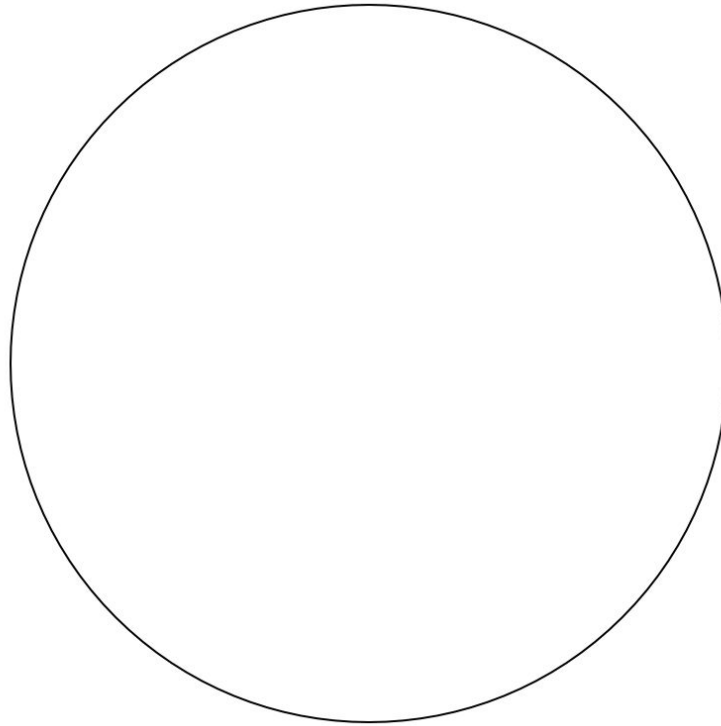
Practicalities

- Schedule:
 - Tuesdays, 10:00h – 11:00 (room 8.2.13) or 14:00h – 15:00 (room 8.2.04)
 - Thursdays, 10:00h – 13:00, room 6.2.52
 - March, April, May 2017
- Fenix: <http://earthsys.ucsciencias.ulisboa.pt>
- Classes will be open
- Students introduction

Why?

What is a PhD?

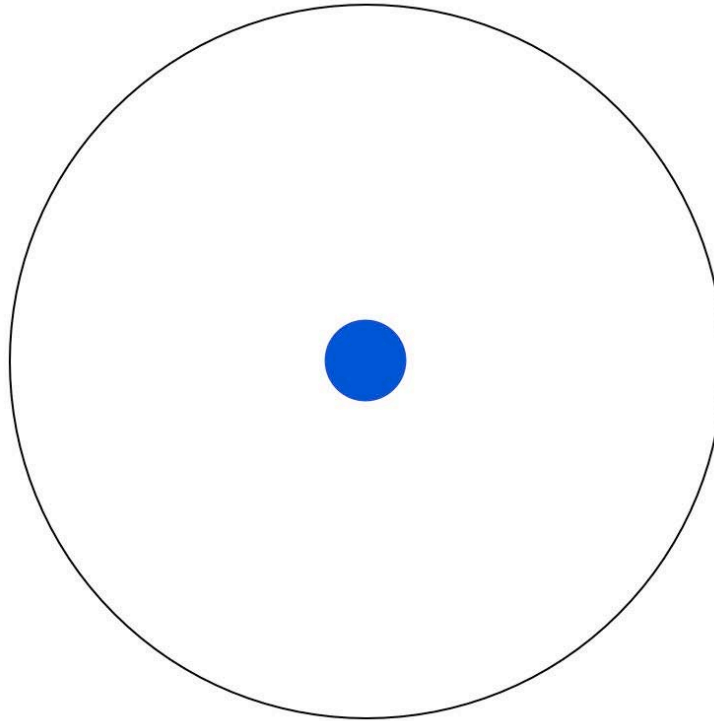
Imagine a circle that contains all of human knowledge:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

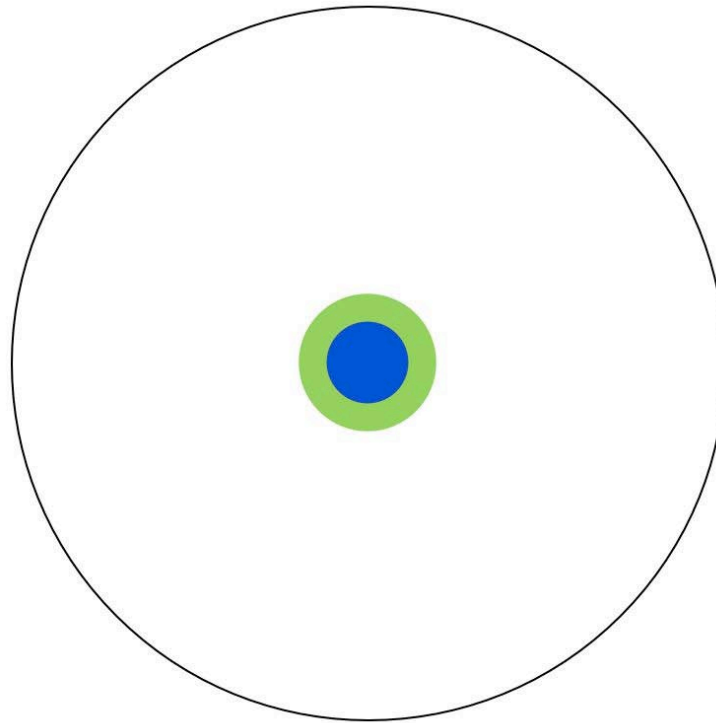
By the time you finish elementary school, you know a little:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

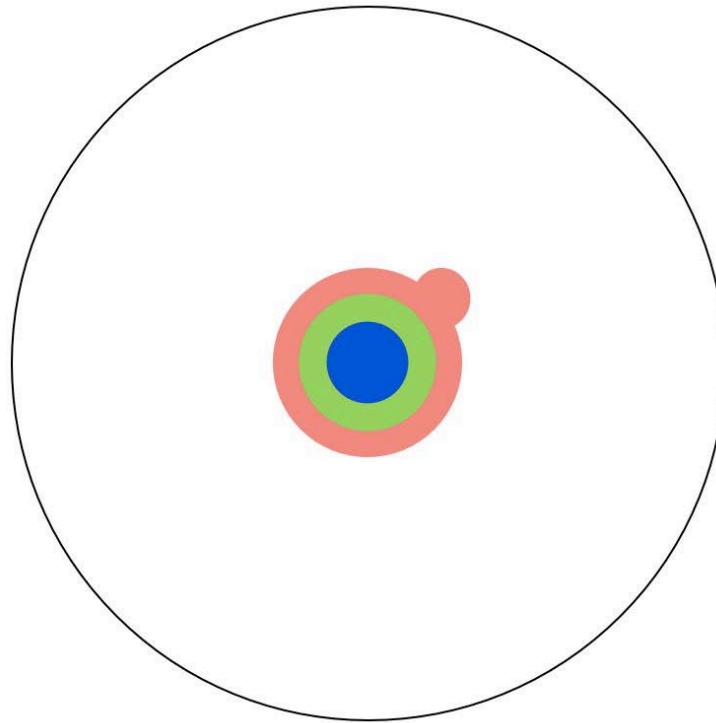
By the time you finish high school, you know a bit more:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

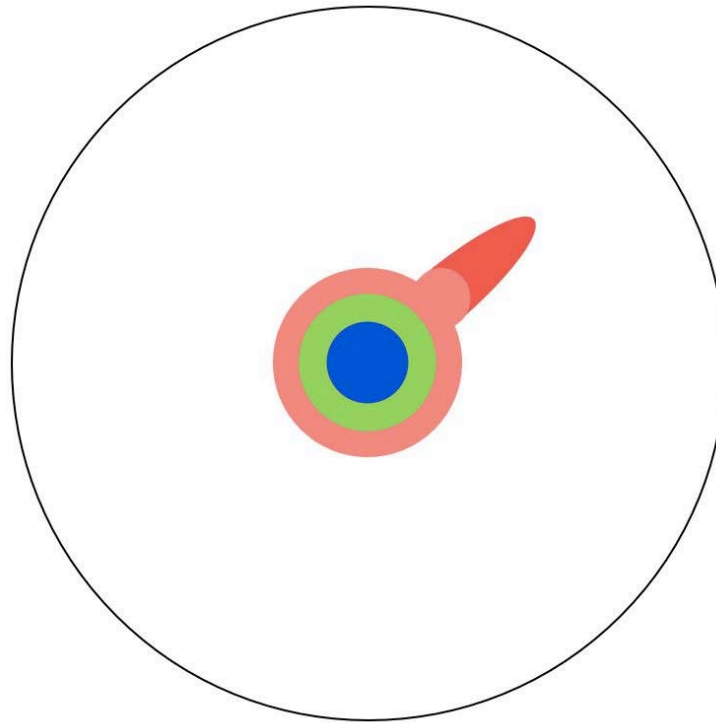
With a bachelor's degree, you gain a specialty:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

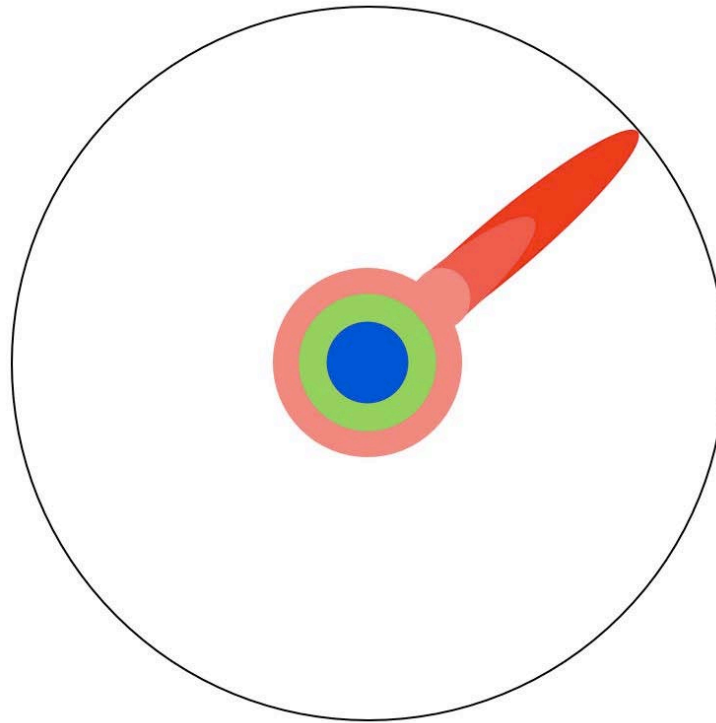
A master's degree deepens that specialty:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

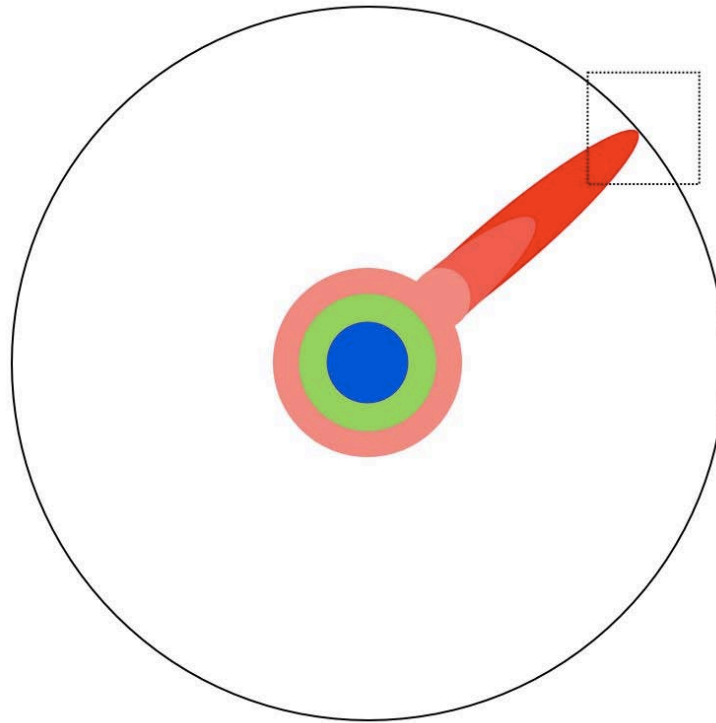
Reading research papers takes you to the edge of human knowledge:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

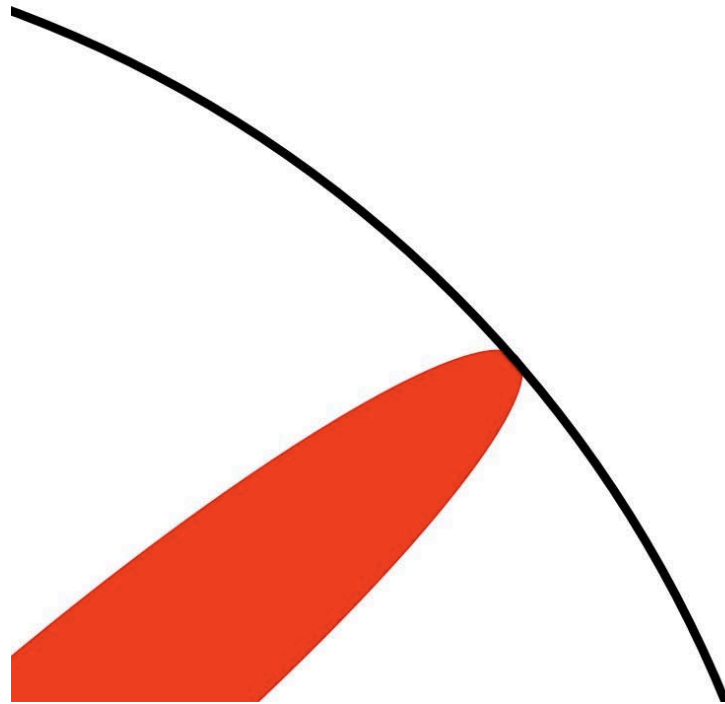
Once you're at the boundary, you focus:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

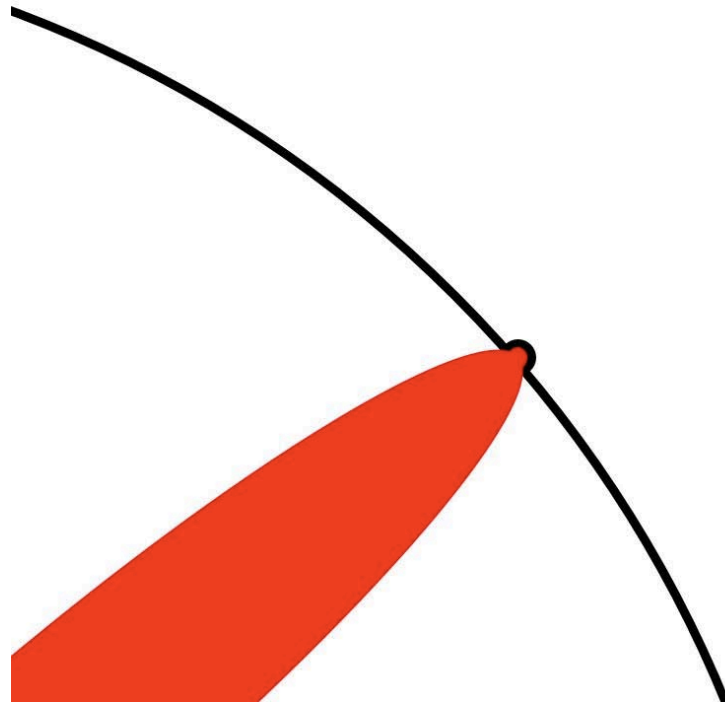
You push at the boundary for a few years:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

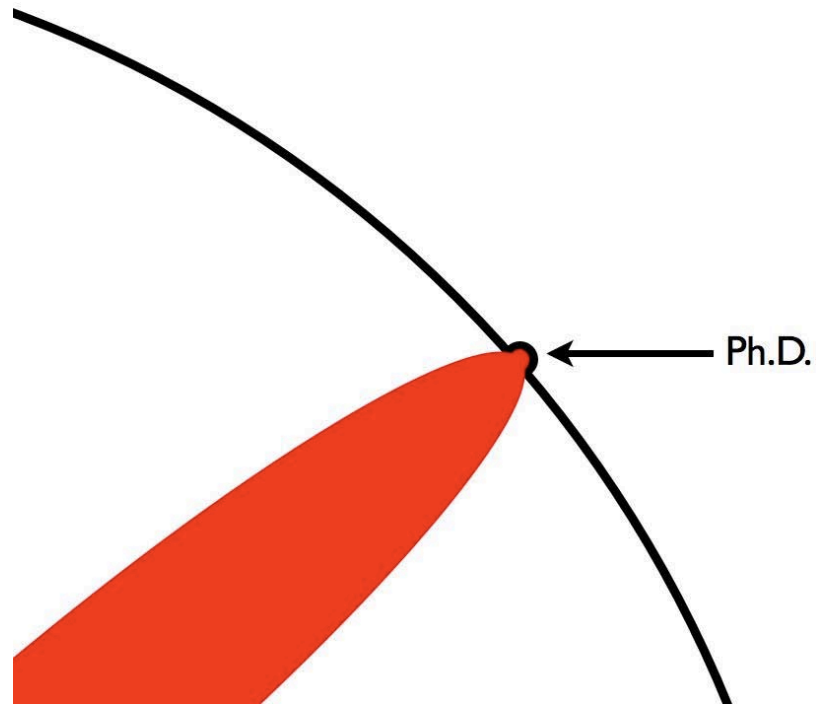
Until one day, the boundary gives way:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

And, that dent you've made is called a Ph.D.:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

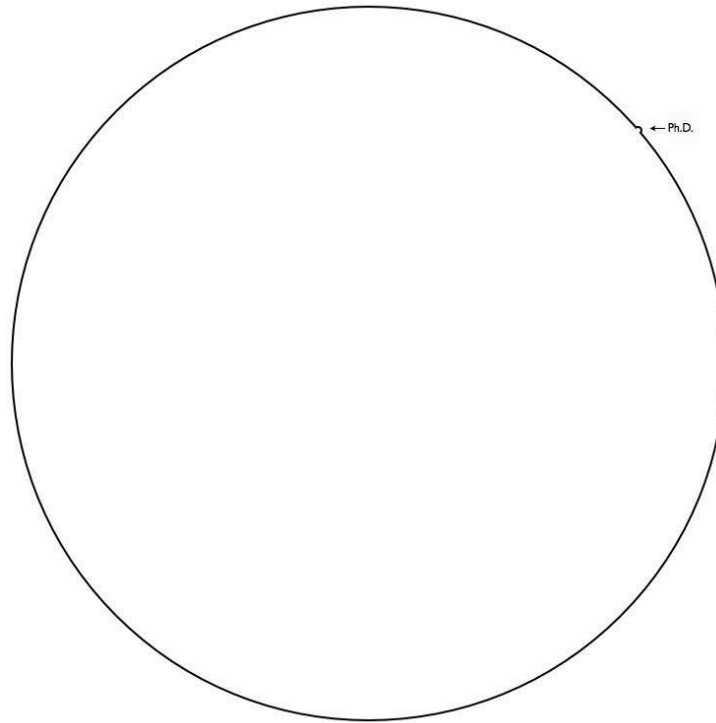
Of course, the world looks different to you now:



Matt Might,
The Illustrated Guide to a PhD

What is a PhD?

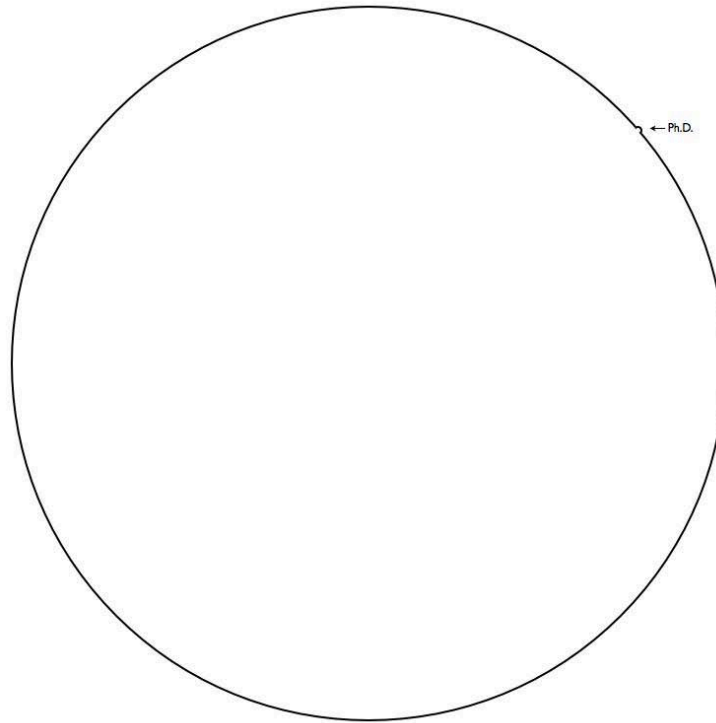
So, don't forget the bigger picture:



Matt Might,
The Illustrated Guide to a PhD

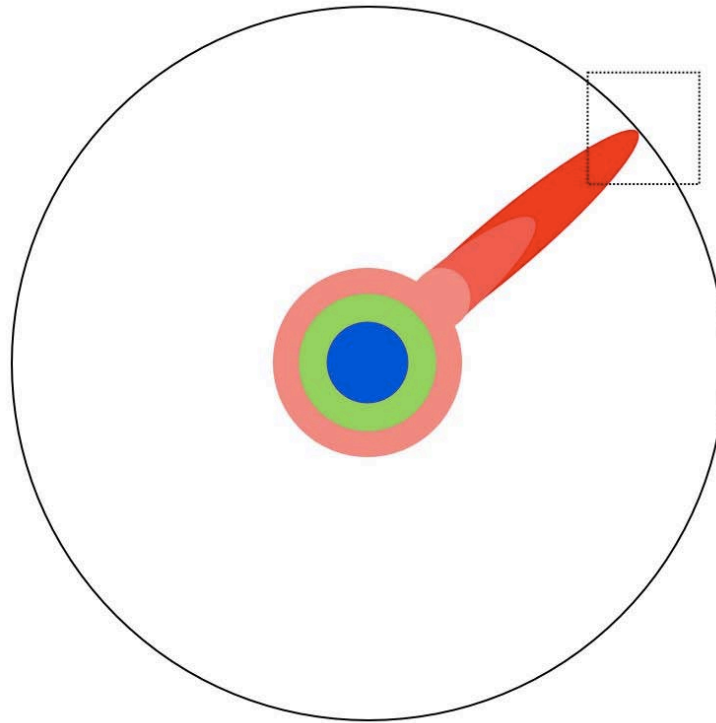
Why these courses?

So, don't forget the bigger picture:



Matt Might,
The Illustrated Guide to a PhD

In this course, we will play this game:



Matt Might,
The Illustrated Guide to a PhD

Scientific Goals

1. Transmit an integrated vision of the Earth Systems (ES)
2. Cover the broad fundamentals of Earth Sciences

How?

Focus on:

- processes and conceptual models
- multi-disciplinary approaches (excursions into other domains are welcome)
- “Earth systems” vision
- identifying and discussing outstanding questions
- innovative methodologies and technologies
- study cases (examples from the real world)

Other goals...

- Learn to discuss openly and honestly
 - Learn to ask questions (all questions allowed, loose your shyness)
 - Develop a constructive critical attitude
- Transition from a student 'receiving' attitude to a researcher 'proactive' attitude
- Practice reading, writing and presenting



- Put you at ease, make you feel comfortable in our research environment

Welcome you!

Course Structure

3 components:

- Lectures (Tuesday, 10:00 – 11:00 or 14:00 – 15:00)
- Discussion (Thursday, 10:00 – 13:00)
- Field trip (3 days, Friday through Sunday, May 26-28)

Attendance is mandatory.

Active engagement is expected.

Field Trip



- Instructors: P Terrinha, C Andrade, P Costa, F Fatela
- Date: Friday through Sunday (26-28 May).
- Tectonics of the Arrábida chain (day 1) + tectonics of the Algarve basin (days 2, 3) + tsunami deposits
- Joint with Marine Geology

Field Trip

Friendship



Beautiful Nature



Adventure



A break from everyday life



Discussion 1: Introduction (Thu, 12:00-13:00)

- Presentation of the problem:
 - Provide background.
 - Pose problems to address in the form of 2–5 questions.
- Break out into smaller groups and list possible ways to answer the questions.
- Discuss all proposed answers together.
- Go home and research the topic of the week.

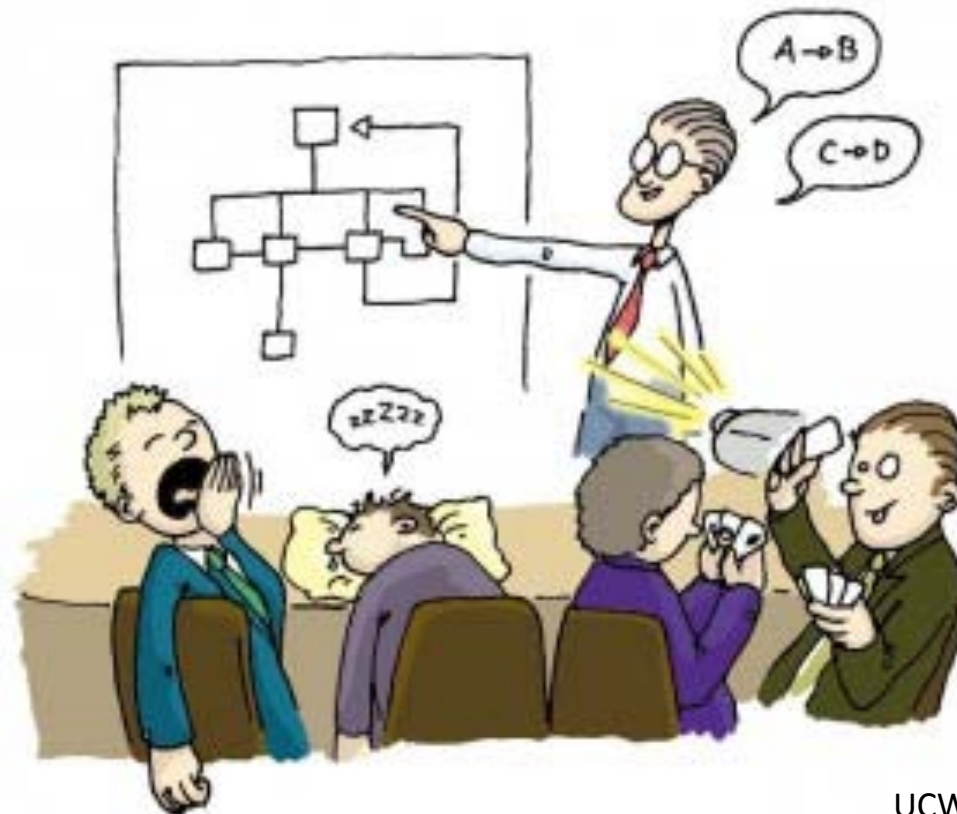
Discussion 2: Class discussion (Thu, 10:00-12:00)

- Share your home research with the rest of the group. You may bring a couple slides to help you present your results. You have 8+2 min to present your results.
- Each student will be responsible for leading the discussion of two topics. Students will prepare topics in pairs.
- Each student will hand in one written essay (10 pages max) about one of the topics discussed. Deadline: 2/June.

Topics and Schedules

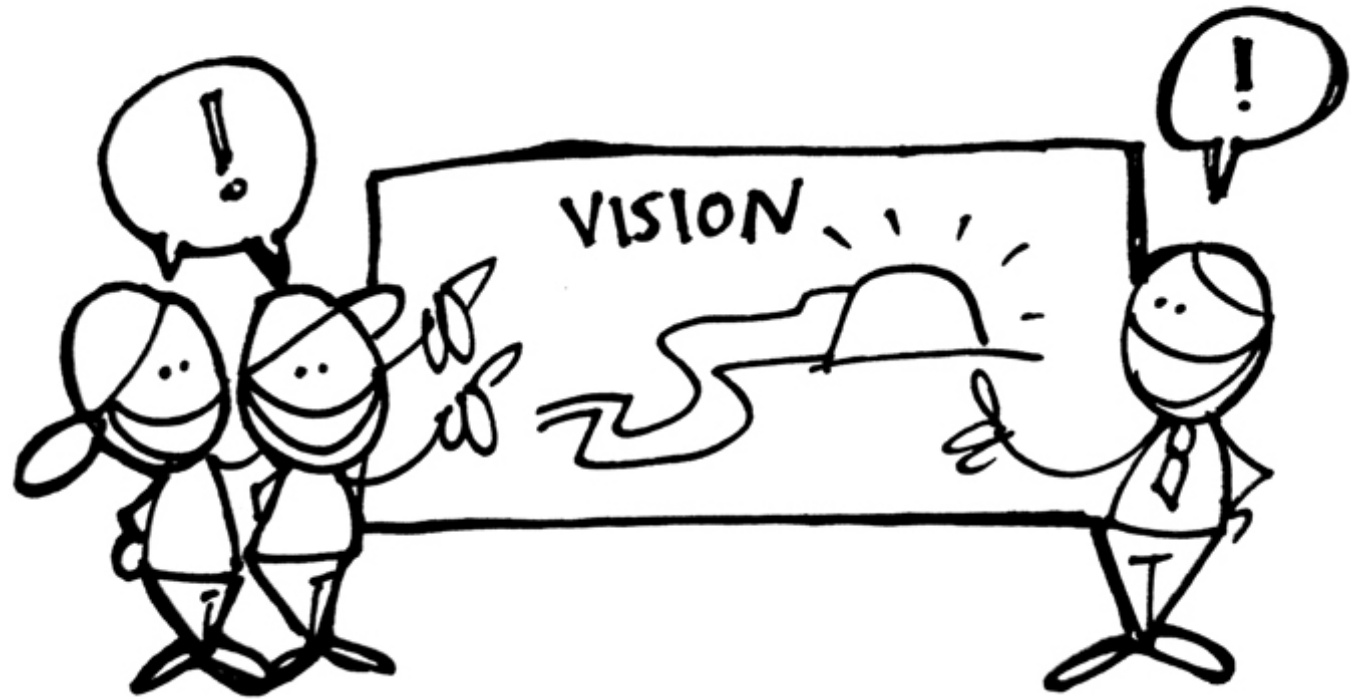
Lectures and Discussions

Less like this:



Lectures and Discussions

More like this:



Sketchy Banana

How to prepare your discussions

1. Read general material (e.g. book chapters)
2. [Talk to / discuss with the 'advisor(s)' of your topic; Talk with us]
3. Read more specific material, do your own research

Remember:

- Give us the 'big picture'
- Focus on processes
- And also tell us something new, go beyond your current knowledge
- Cover the basics

Keep in mind the goals of the course

1. Transmit an integrated vision of the Earth Systems
2. Cover the broad fundamentals of Earth Science

Focus on:

- processes and conceptual models
- multi-disciplinary approaches
- “Earth systems” vision
- identifying and discussing outstanding questions
- innovative methodologies and technologies
- study cases (examples from the real world)



5 Tips for Writing

1. Think about it before starting. What do you want to say?
2. Tell a story:
 1. Beginning (motivation, background)
 2. Middle (the science)
 3. End (conclusions, take-home message)
3. Make linear reasonings (don't go round in circles). Note that research is rarely linear...
4. Use adequate references.
5. Use simple language (short sentences, etc).

5 Tips for Presenting

1. Enjoy it, have fun! 😊
2. Do not fill slides with text.
3. Respect the time (respect the audience). Less is more.
4. Remember that everyone fades away every now and then...
5. Be yourself (you can break 'rules').

There's a lot on this online...

Evaluation

1/4 Discussion introduction and leading

1/4 Field trip

1/2 Discussion/Participation in Class

Questions? Suggestions?

