



open source

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# **Introduction to the Course "DESIGN AND ANALYSIS OF ENVIRONMENTAL MONITORING AND EXPERIMENTS"**

## **Lecture 1**

**G. Bacaro**

**Design and Analysis of Environmental Monitoring and Experiments  
Master Degree in Global Change Ecology  
I Year, I term**

# Course Aims

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## Introduction to the DAEME course

- The student should be able to plan his/her own environmental survey;
- The course aims at giving instruments to manage ecological and environmental source of variability;
- The course aims at exploring univariate and multivariate methods useful to detect changes in ecological and environmental conditions



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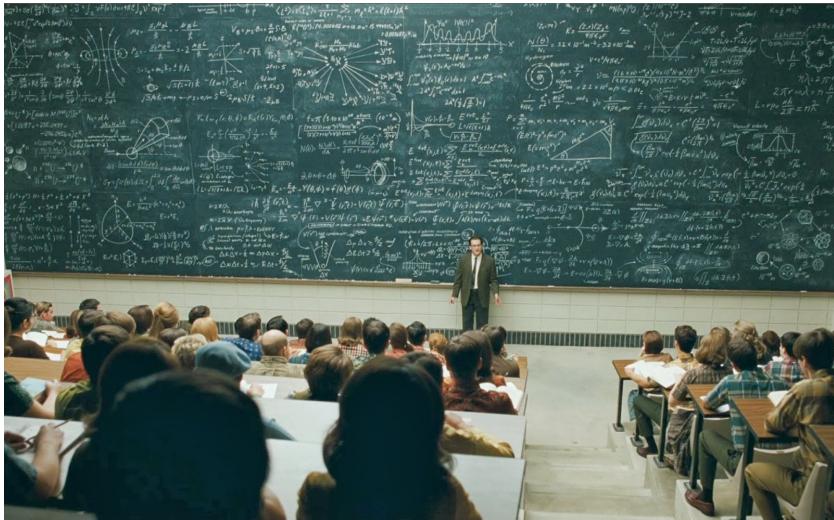
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# Course Structure

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## Introduction to the DAEME course

- 6 CFU – 48 hours lectures



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# Course Program

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## Introduction to the DAEME course

- Introduction: Sampling design and experimental design.
- “Core”: Data collection, types of data, data analysis. Univariate and multivariate methods
- How to interpret, describe and present results.



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# Lecture Time Schedule

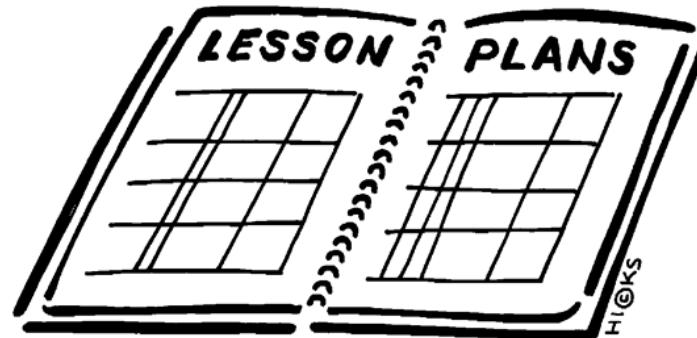
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## Introduction to the DAEME course

- Days

Monday 9:00:11:00

Thursday 14:00:16:00



- CourseEnd \approx - 23 December



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# Exams

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## Introduction to the DAEME course

- Practical  
(mandatory)



- Oral



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# Who's who

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## Introduction to the DAEME course

Degree in Natural Science



MobiSIC Project



irpi  
Istituto di Ricerca per la  
Protezione Idrogeologica  
**Root,  
Vegetati  
on and  
soil  
features**



**Italian EU Presidency Team  
for the COP 12 preparation**



**PhD in Science and Technologies  
applied to the Environment**



+ RESILFOR Life+ Project



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# Other Experiences

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## Introduction to the DAEME course



Biodiversity for Sustainable Development  
PYEONGCHANG, KOREA 2014  
COP 12/MOP 7/NOP 1

Twelfth meeting of the Conference of the Parties to the Convention on Biological Diversity  
Seventh meeting of the Parties to the Cartagena Protocol on Biosafety (COP-MOP 7)  
First meeting of the Parties to the Nagoya Protocol on Access and Benefit Sharing (COP 1)

TerraData environmetrics

SpinOff accademico

NEWS NEWSLETTER INITIATIVES

◀ Knowledge building for ecology and imaginAction ▶

Sei qui: Home

HOME MISSIONE AREA RISERVATA



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# Contacts

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## Introduction to the DAEME course

- When I'm available to receive students:
  - Monday 15:00-17:00
  - Wednesday 15:00-17:00
  - Friday 15:00-17:00
- Or just send me an email and ask.
  
- Office address:  
Building M, Room B/32  
Phone - 0405588803  
Email - [gbacaro@units.it](mailto:gbacaro@units.it)



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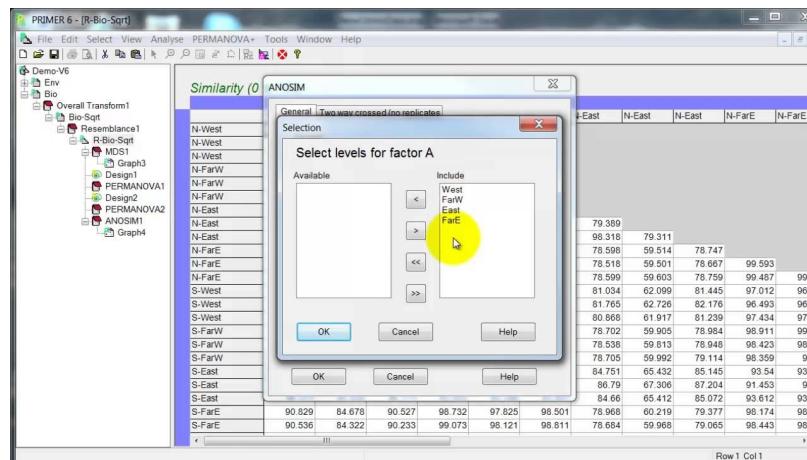
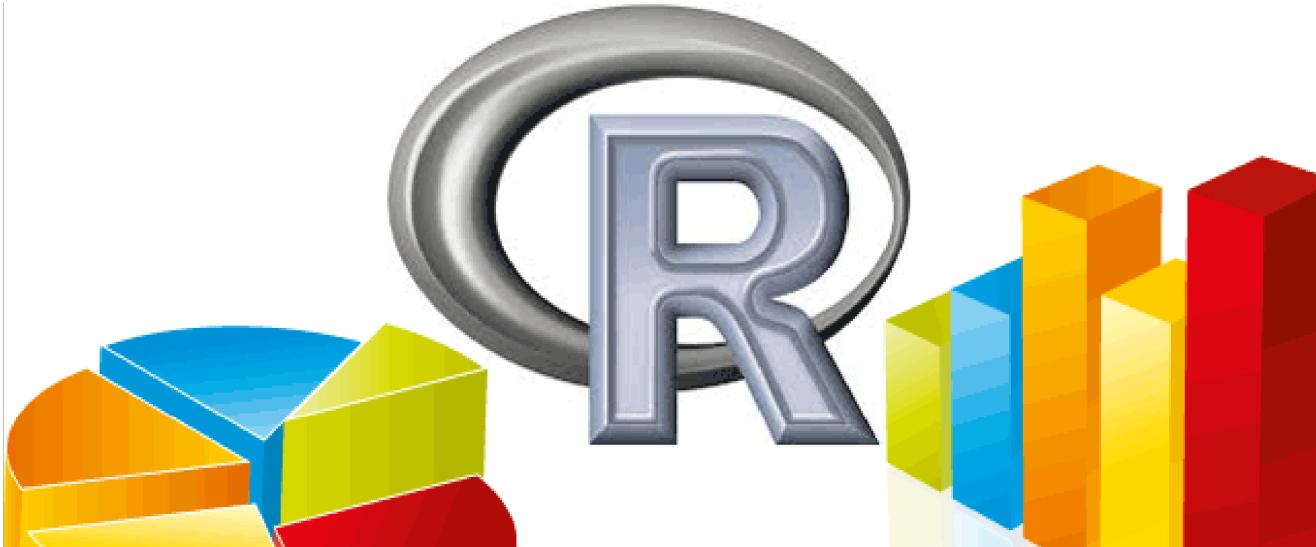


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# Software and Lab Activities

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## Introduction to the DAEME course



**PRIMER-E**  
*Multivariate Statistics  
for Ecologists*



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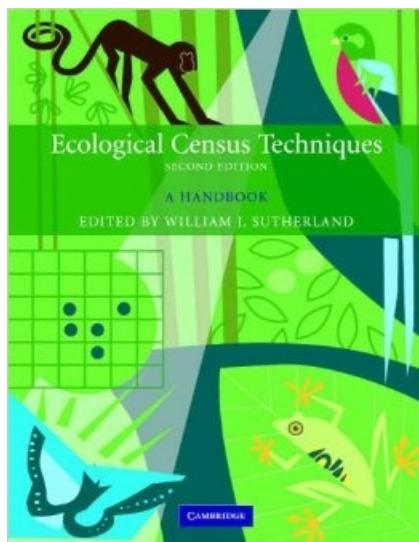
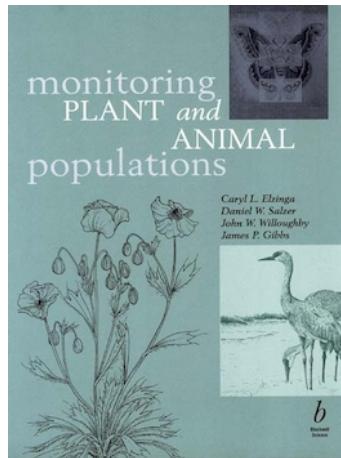
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# Books and Documentation

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## Introduction to the DAEME course



Elzinga et al. (2008). Measuring & monitoring plant populations. Downloadable as pdf

Sutherland (2006). Ecological Census Techniques. Cambridge. 423 pp.

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R<sup>6</sup> HOME PUBLICATIONS QUESTIONS JOBS

Giovanni Bacaro 36.79 Ph.D. Professor (Associate) Università degli Studi di Trieste - Department of Life Sciences

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Università degli Studi di Trieste Department of Life Sciences Trieste, FVG, Italy

ABOUT My main research interests include the impact of global change on plant species, the relationship between vegetation and slope stability, the analysis of plant diversity patterns over large areas as well as the co-occurrence relationship. I often apply a multiple-scale approach investigating processes at the local, landscape, and biogeographical scale.

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# The Open Source Philosophy

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## Introduction to the DAEME course



### Let the four freedoms paradigm apply to ecology

Duccio Rocchini and Markus Neteler

Fondazione Edmund Mach, Research and Innovation Centre, Department of Biodiversity and Molecular Ecology, Via E. Mach 1, 38010 S. Michele all'Adige (TN), Italy

The famous ‘four freedoms’ expounded by Stallman [1] are: (i) the freedom to run the program for any purpose; (ii) the freedom to study how the program works and adapt it to one’s own needs; (iii) the freedom to redistribute copies; and (iv) the freedom to make improvements to the program and release them to the public. Thus, the whole (scientific) community benefits from software development. These freedoms are also inherent in several free software licenses, the GNU General Public License (GPL) being one of the most popular.



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# Why Open?

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L'utilizzo di Software Libero e Gratuito (Free and Open Source Software - FOSS) è l'unico metodo per condividere e produrre una ricerca scientifica ripetibile ed indipendente

### Vantaggi nell'uso del Software libero

- accesso totale agli algoritmi di calcolo e possibilità di implementarli;
- Permette di intervenire direttamente sui bug ed apportare migliorie;
- Ampia disponibilità di forum di ricercatori e sviluppatori
- Permette a tutti i ricercatori del mondo di analizzare i propri dati, superando i problemi economici legati alle licenze dei software proprietari;
- Promuove la riproducibilità delle ricerche fornendo strumenti liberi ed accessibili



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# Open Software and Open Students

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