

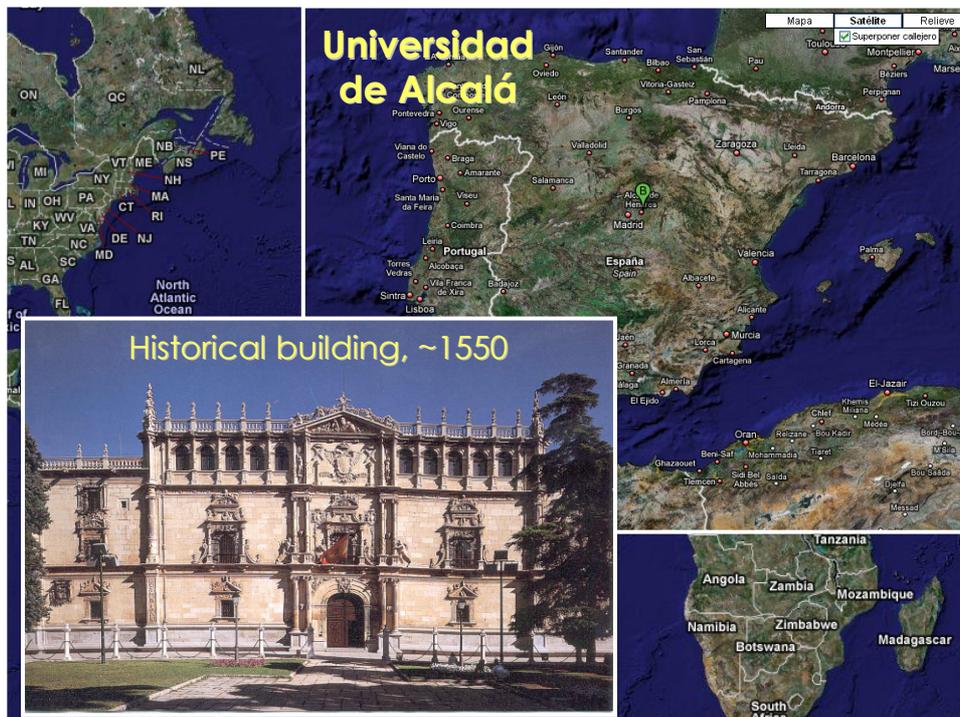
Combining lectures with webpage support and independent study

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Report of an experience

Official degrees (BSc)

Large group size (50 – 100+ students)

Base teaching method:
lectures and
laboratory sessions

Proposal: supplement these
with the use of a web page
that provides supporting
material



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Just take profit of whatever tools become available



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Supporting web page - Overview

- ❖ “Logistics” of the course
- ❖ Exercises and activities
- ❖ Bibliography
- ❖ Content
- ❖ Interactive material to support learning

details...



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Supporting web page (1)

- ❖ “Logistics” of the course:
 - Academic information
 - Calendar & timetable
 - Rules
 - Announcements
 - Calls for practical sessions and exams
 - Results of assessment

Support for absent students as well as those attending classes

Centralized point of information



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Supporting web page (2)

- ❖ Suggested exercises and activities.
- ❖ Bibliography (including internet links), both general and specific for each lesson or topic.
- ❖ Summaries or content of the subject matter.
- ❖ Copies of graphical material used in class.

Support for
(self-
learning



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Supporting web page (3)

- ❖ **Interactive** material to support learning:
 - 3D molecular models (guided and interactive)
 - Animations
 - Self-assessment tests (formative, with feedback provided automatically)

All kinds of
content
(true
multimedia)

More student-centered learning



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Format: open web pages (1)

❖ We chose open access web pages

❖ Benefits:

- Sharing of resources with the community
- Easier accessibility
- Simple maintenance
- Both on-line and off-line
- More flexibility in design and content

Web format also valid without internet



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Format: open web pages (2)

❖ Limitations/Drawbacks:

- No close tracking of the students
- But this is not intended in our set-up (basically due to high numbers of students and non-compulsory activity)
- Mostly one-way delivery

❖ But ...

Complement lectures and presential teaching



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Format: open web pages (3)

- ❖ But there are routes for communication and feedback
 - Contact forms
 - e-mail
- ❖ All this relies, however, on student's initiative and motivation



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Examples

[examples](#)

- ❖ (Standalone resources)
 - [Molecular models](#) (guided tutorial)
 - Animations: [1](#) [2](#)
 - [Tutorials](#)
- ❖ (Course-related pages)
 - [Course support](#): information, calendar, chapter-by-chapter bibliography and links, activities, contact the instructor...
 - [Self-assessment](#) (2-7, 9-2, 9-3, 9-10, 13-2)



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Results (1)

- ❖ Success?
Mostly unknown,
little feedback from students.
 - It's difficult to raise enthusiasm
and explicit comments
 - A good feeling, though
- ❖ And... Google ranking
– at least success outside



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Results (2)

- ❖ Along the years, the students are more accepting and using a system (different systems)
 - More or less computer-savvy.
Not really proficient in serious use.
(Most often they have received no training in computers.)
- ❖ Still, frequently they are used to the technologies * but only for entertainment, not for work; they need stimulus for this –and training–



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Results (3)

- ❖ Despite all the enthusiasm for e-techniques, our perception of the students' reality indicates that the face-to-face lecture format can hardly be abandoned.



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Results (4) – another example

- ❖ “Wet” labs and virtual labs – combination is possible and desirable.
- ❖ 3rd year in Pharmacy: wet lab
 - DNA purification
 - digestion with restriction enzyme
 - gel electrophoresis
 - (applied to cloning plasmid)
- ❖ 4th year in Pharmacy: dry lab
 - digestion with several restriction enzymes
 - gel electrophoresis
 - (applied to RFLP polymorphism detection)



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Key variables (1)

- ❖ Many reports of excellent and brilliant initiatives in teaching innovation.
- ❖ But in deciding their adoption and design, one must consider:
 - group size
 - student's responsibility in their learning
 - bare interest in learning



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Key variables (2)

- ❖ Some facts that may play against this:
 - load of work from different subjects, higher with active learning strategies
 - students' diverse (social) interests competing with study
 - low motivation
 - the lack of a culture of effort



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Some reflections (1)

- ❖ In attempting to improve our teaching and the efficiency of students learning, redesign of teaching methodology is a common goal.
- ❖ When confronting this task, some doubts may arise.



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Some reflections (2)

- ❖ Should we –or not– enforce student's responsibility?
- ❖ Are we generating a “kindergarten effect”? i.e. miseducating the students, being complacent, too permissive or letting them be naive
- ❖ Will the offer of on-line support material reduce the index of assistance to the classroom?



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Summary :: My conclusion

- ❖ The web page is an excellent option to support teaching and learning
 - most flexible & versatile
 - saves work: write once, use in many ways, grow progressively
 - covers different student situations / needs
- ❖ Choosing the right tools must be a balanced decision



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Addresses

- ❖ <http://www2.uah.es/bioquimica/f-bmig/>
 - Supporting web page for Molecular Biology and Genetic Engineering, BSc. Pharmacy
- ❖ <http://biomodel.uah.es/>
 - Support materials for teaching and learning B&MB
- ❖ <http://www.biorom.uma.es/>
 - A CD-ROM compilation of materials
 - Spanish & some Portuguese
 - 7th edition (one every year)
 - 31 authors, 19 universities, 5 countries
 - Free, Creative Commons Licence
 - ¡Estão convidados a unir-se!



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Oops! Finally, the advertising
ISBN 978-1-84799-259-8
(just use the link in my
website)

Thank you

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<http://biomodel.uah.es/>

