Getting Started in R
Some Strategies and Tactics

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1. Start right away

Do something with R on day 1.

Do something else on day 2.

Have students do something by the end of week 1 at the latest.

2. Illustrate frequently

Have R running every class period and use it as needed throughout the course so students can see what R does.

Preview topics by showing before asking students to do things.

3. Teach R as a programming language (but don't overdo)

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- Capitalization (and spelling) matter
- Explain carefully (and repeatedly) the syntax of functions.
- Every object in R has a type (class). Ask frequently: *What type of thing is this?*
- Get students to think about what arguments are needed for functions by asking *What does this function need to know to do its job?*

Give more language details in higher level courses

- More about R classes
- User-defined functions
- Control structures

5. “Less volume, more creativity.”

– Mike McCarthy, head coach, Green Bay Packers

Use a few methods frequently and students will learn how to use them well, flexibly, even creatively.

Focus on a small number of data types: numerical vectors, character strings, factors, and data frames.

Not everything needs to be introduced from first principles.

6. Find a way to have computers available for tests

It makes the test match the rest of the course and is a great motivator for students to learn R.

It also changes what you can ask for and about on tests.

May choose to mix in-class and take-home sections.

7. Rethink your course

If you have taught computer-free or computer-light courses in the past, you may need to rethink some things.

With ubiquitous computing, some things disappear from your course.

At the same time, other things become possible that were not before:

8. Anticipate computationally challenged students, but don't give in

Be prepared to help them, but don't enable.

Focus on diagnosing what they don't know and how to help them "get it".

Tell students to copy and paste R code and error messages into email when they have trouble.

9. Introduce graphics early

Students must learn to see before they can see to learn.

Lattice graphics in R prepare students for modeling (conceptually and syntactically)

10. Introduce sampling and randomization early

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Our purpose:

- To share ideas and resources to improve teaching and assessment.
- To make it easy and rewarding to do so.

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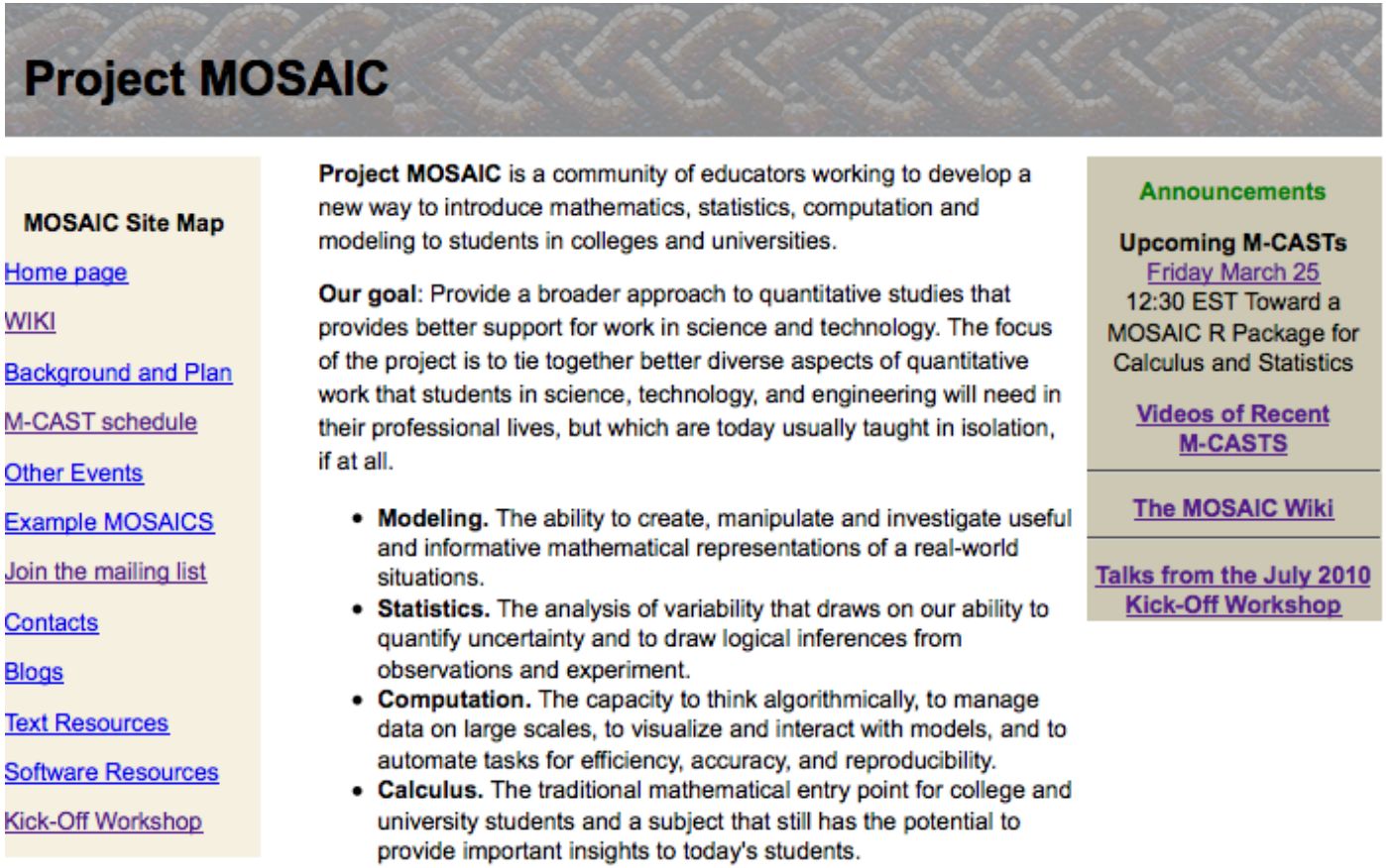

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