Welcome to ESSM 689 Day 1 – Planning and Intro to R

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Core themes include:

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• Collaboration modes and methods
• Data management, preservation, and sharing
• Data manipulation, integration, and exploration
• Scientific workflows and reproducible research
• Data analysis and modeling
• Communicating results
Why Quantitative Methods?

• “learn from the data”; “answer scientific and management questions” (can be a bit vague)
• describe (are we ever really interested in pure description?)
• understand or explain something (slippery)
• test one or more hypotheses (why?)
• predict (this at least is fairly clear)
• make a decision (ditto)
The Message Box

- A tool to help organize your thoughts and identify key points
- It is flexible in use
- Define your audience
- Streamline your information

- Developed by Nancy Baron, author of Escape from the Ivory Tower and other interesting books
The Message Box

• What are the problems/conflicts/issues involved (Problems)?
• Why does this information matter to your listener (So What)?
• What are possible solutions to the problem (Solutions)?
• What are the benefits of resolving the problem (Benefits)?
Message Box

Audience: ________

Problems?

Issue

Benefits?

Solutions?

So What?
Message Box Example


Problems?
There is a large regional difference in disease burdens due to global warming.

Benefits?
- Reduce the adverse health effects of global warming (w/ co-benefits of cleaning up air quality)
- Take care of current populations without compromising health for future generations (“sustainable health”)

Regional health effects of global warming

Solutions?
The US should sign the Kyoto protocol and join the rest of the world in confronting climate change.
Personally, I’ve made easy choices as a first step (e.g. hybrid car, mini-fluorescents, etc.)

So What?
Those most at risk from global warming, are also the least responsible for causing the problem. Herein lies an enormous global ethical challenge.

J. Patz, 2005 Leopold Fellow

Audience: U.S. National Media
Media Result

“Those most vulnerable to climate change are not the ones responsible for causing it,” said the study’s lead author, Jonathan Patz, a professor at the university’s Gaylord Nelson Institute for Environmental Studies and its department of population health sciences. “Our energy-consumptive lifestyles are having lethal impacts on other people around the world, especially the poor.”

Washington Post
Climate Shift Tied To 150,000 Fatalities
Most Victims Are Poor, Study Says
(Nov. 17, 2005)
Why use the message box?
Message Box

• We will return to this throughout the semester
Collaboration and our different selves
Team Building
Team Building – Common Thoughts

I don’t do touchy-feely stuff like that.

Are you serious? I am NOT doing that.

Why aren’t we doing science?

Scientists aren’t like other people. We are different.

Students are very comfortable talking to me; they can knock on my door any time.
Acceptable team building activities in E, E, and B
Pseudo Learning Group

Students in a pseudo learning group are assigned to work together but they have no interest in doing so. They believe they will be evaluated by being ranked in terms of highest performer to lowest performer. On the surface these students talk to each other, but under the surface they are competing. They see each other as rivals who must be defeated, and they block or interfere with each other’s learning, hide information from each other, attempt to mislead and confuse each other, and distrust each other. These students would achieve more if they were working alone.

Traditional Classroom Learning Group

Students in a traditional classroom learning group are assigned to work together and accept that they must do so. But because assignments are structured, very little joint work is required. These students believe that they will be evaluated and rewarded as individuals, not as members of the group, so they interact primarily to clarify how assignments are to be done. They seek each other’s information, but have no motivation to teach what they know to their group mates. Helping and sharing are minimized. Some students load, seeking a free ride on the efforts of their more conscientious groupmates. The conscientious members feel exploited and do less. The result is that the sum of the whole is more than the potential of some of the members, but the harder working, more conscientious students would perform better if they worked alone.

Cooperative Learning Groups

Students in cooperative learning groups are assigned to work together and, given the complexity of the task and the necessity for diverse perspectives, they are relieved to do so. They know that their success depends on the efforts of all group members. The group format is clearly defined: (1) The group goal of maximizing all members’ learning provides a compelling common purpose that motivates members to roll up their sleeves and accomplish something beyond their individual achievements. (2) Group members hold themselves and each other accountable for doing high-quality work to achieve their mutual goals. (3) Group members work face-to-face to produce joint work-products. They do real work together. Students promote each other’s success through helping, sharing, assisting, explaining, and encouraging. They provide both academic and personal support based on a commitment to and caring about each other. (4) Group members are taught teamwork skills and are expected to use them to coordinate their efforts and achieve their goals. Both task and team-building skills are emphasized. All members share responsibility for providing leadership. (5) Groups analyze how effectively they are achieving their goals and how well members are working together. There is an emphasis on continual improvement of the quality of learning and teamwork processes. For a recent guide to success in active learning, see Striving for Excellence in College (Brownne and Keeley, 1997).

High-Performance Cooperative Learning Group

A high-performance cooperative learning group meets all the criteria for being a cooperative learning group and outperforms all reasonable expectations, given its membership. What differentiates the high-performance group from the cooperative learning group is the level of commitment members have to each other and the group’s success. Jennifer Putnam, who is part of a high-performing, rapid-response team at McKinsey & Company, calls the emotional binding together of her teammates a form of love (Katzenbach and Smith, 1993). Ken Hoepner of the Burlington Northern Intermodal Transport Team stated: “Not only did we trust each other, not only did we respect each other, but we gave a damn about the rest of the people on this team. If we saw somebody vulnerable, we were there to help” (Katzenbach and Smith, 1993). Members’ mutual concern for each other’s personal growth enables high-performance cooperative groups to perform far above expectations, and also to have lots of fun. The bad news about extraordinarily high-performance cooperative learning groups is that they are rare. Most groups never achieve this level of development.

Groups and Teams

I’ve been using the term team in reference to projects and group in reference to learning, but I will use these two terms interchangeably throughout this book. Though the traditional literature focuses on groups, recently some writers have been making distinctions between groups and teams. For example, Table 2.1 presents Korn’s (1996) comparison of the major differences between work groups and teams.

Figure 2.1 Group Performance

Regardless of the information (where creator shaped person analysis is still engineering tei

Importance

Often we must work with but the project. We look at the exa basketball team Dennis Rodman at managing di

Smith 2007