<table>
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<tr>
<th>Week</th>
<th>General Topic</th>
<th>Fall 2014: BIOL 1208R (Generating Mutant Yeast Strains)</th>
<th>Spring 2015: BIOL 1209R (Competitive Advantage in Invasive Elephant Ear)</th>
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</table>
| #1   | Background, How to read research paper | Introduction:  
- Introduction to project background  
- Research paper #1 assigned (HW)  
- Discussion on the structure of a research paper | Introduction:  
- Introduction to invasive species  
- Discussion on the scientific method, reading primary literature and scientific writing |
| #2   | Interactive paper discussion, experimental design | Part I: Isolation of desired fragment from plasmid:  
- Lecture, followed by practice session, on pipetting and spectrophotometry  
- Lecture on yeast genetics and PCR | Part IA: Field experiment  
- Visit Bluebonnet Swamp  
- Collect initial data from the field  
- Formal Writing I assigned |
| #3   | Project part I - theory lecture | Part IA: Plasmid PCR:  
- Lecture on PCR  
- Set up plasmid PCR | Part II: Greenhouse  
- Interactive class discussion on experimental design |
| #4   | Project part I continued; discussion on Scientific Writing | Part IB: Gel electrophoresis & Part IC: Ethanol precipitation:  
- Lecture on gel electrophoresis and analysis, and ethanol precipitation  
- Gel electrophoresis, ethanol precipitation on plasmid PCR product  
- Informal (in-class) writing I on analysis on DNA fragments on gel  
- Formal Writing I assigned | Part II continued  
- Experimental setup in the greenhouse  
- Collect initial data at time-point #1  
- Formal Writing I due |
| #5   | Project part II - theory lecture | Part IC continued:  
- Interactive discussion on gel analysis of DNA fragments and ethanol precipitation  
- Ethanol precipitation continued | Parts I and II: More Background  
- Plants allowed to grow undisturbed in the greenhouse  
- Lecture on plant diversity, ecology and competition |
| #6   | Project part II continued | Part II: Yeast transformation:  
- Lecture on yeast transformation and scientific writing  
- Yeast transformations performed | Part II continued  
- Collect data from greenhouse experiment (time-point #2) |
| #7   | Project part II continued; lecture on graphing and statistics | Part II continued:  
- Following a failed yeast transformation: class discussion on potential reasons why the transformation failed and how to troubleshoot the problem  
- Formal Writing I due | Data analysis  
- Lecture on data analysis and statistics  
- Practice analyzing data using an example data set  
- Informal (in-class) writing I on data analysis (practice data set) |
| #8   | Individual-choice research paper presentations | Part II continued; Elements of Poster Design:  
- Repeat yeast transformation  
- Lecture on poster design and development  
- Formal Writing II assigned | Data analysis continued  
- Analyze the greenhouse data using the statistical tools discussed  
- Informal (in-class) writing II on data analysis (existing greenhouse data set) |
| #9   | Elements of poster design - lecture | Part III: Confirming mutant strains by colony PCR & growth assay:  
- Interactive session of PCR, primer design and expected results  
- Set up colony PCR  
- Inoculate colonies for growth assay  
- Graded Formal Writing I returned | Elements of poster design  
- Workshop on poster design and development  
- Poster Critique assigned |
| #10  | Poster development & critique | Part III continued:  
- Gel electrophoresis on colony PCR product and results analysis  
- Informal (in-class) writing II on gel analysis  
- Lecture on growth assay  
- Growth assay data collection  
- Poster Critique assigned | Part IB: Field experiment  
- Visit Bluebonnet Swamp  
- Collect final data from the field  
- Formal Writing II assigned |
| #11  | Final exam & poster review | Data analysis and interpretation; Peer poster critique; Final Exam Review:  
- Lecture on growth curves, data analysis, graphing and interpretation  
- Informal (in-class) writing III on growth curve data analysis and interpretation  
- Peer-critique of poster drafts  
- Poster Critique assignment due  
- Formal Writing II due  
- Interactive final exam review session | Part II continued  
- Collect data from greenhouse experiment (time-point #3)  
- Analyze complete greenhouse data set  
- Informal (in-class) writing III on data analysis of the complete greenhouse data set |
| #12  | Poster presentations | Poster presentation & Final Exam review:  
- Poster presentations & peer evaluation  
- Interactive final exam review session  
- Graded Formal Writing II returned | Poster presentation & review  
- Informal poster presentations by students  
- Peer- and TA-review of posters  
- Formal Writing II due |
| #13  | Final Exam | Final Exam | Final Exam |

Abbreviations: PCR – polymerase chain reaction; HW – homework