

## Student Local Course Itinerary

### Week One

#### Day One (1/21)

**Preparation for Class:** None

**Classroom Activities:** (1) LAP 101 Peer Introductions. Doing Science and Asking Questions: An interactive Exercise. (2) LAP 249 Course Overview and getting to know Blackboard (includes setting up your own web page). (3) Homework questions provided about water (due 1/30).

#### Day Two (1/23)

**Preparation for Class:** Read Chapter One

**Classroom Activities:** (1) Properties of Water (Lap 178). (2) Brief discussion on Journal Format.

### Week Two

#### Day Three (1/28)

**Preparation for Class:** (1) Start your journal. (2) Read Chapter 2 and be prepared to discuss it in class. (3) Responses to Activity 2.4 are to be posted on the web with due date 1/30 (4) Start Activity 2.2. Minimum of four sources (from TV, radio, newspaper, research journal, popular journal, WEB) required. Due 3/11.

**Classroom Activities:** (1) What is Science ? Discussion (2) The Poster as a vehicle for Reporting Scientific Research. Students to be provided title and floor location of posters in Lapham. Student Poster Field Trip: students walk to see posters and raise at least one question per poster for total of 5 posters; due 2/13.

#### Day Four (1/30)

**Preparation for Class:** (1) LAP 101 Water Homework Problems of 1/23 due today. (2) Activity 2.4 responses due posted on web.

**Classroom Activities:** (1) Water testing in Wet Lab LAP 178 (2) LAP 178 Cover Water Homework Problems.

### Week Three

#### Day Five (2/4)

**Preparation for Class:** (1) Follow up to Activity 2.4. List: skills you have and skills you need to cultivate to achieve goals/results listed in Activity 2.4. Students to post these responses on the Web with due date 2/4. (2) Read Chapter 3. Exercises pg 55-61 to be turned in on 2/4. (3) Journal Check.

**Classroom Activities:** (1) Fun Math (3) Introductory discussion of Research Project. (4) Introduction to Probability Theory. Students to be provided homework with due date 2/6.

#### Day Six (2/6)

**Preparation for Class:** (1) Homework from 2/4 on Probability due. (2) Complete Activity 3.1 for class. (3) Begin Activity 3.2. Due, posted on web, 2/11. (4) Begin Activity 3.3. Students to post on web weekly (2/18, 2/15, and 3/4) reports.

**Classroom Activities:** (1) Introduction to Hypothesis Testing (2) Applications of Hypothesis Testing (3) Homework Sheet on Analysis of Water Data to be handed out; due 2/6.

## Week Four

### Day Seven (2/11)

**Preparation for Class:** (1) Probability homework from 2/6 due. (2) Read Chapter 5 and prepare for class discussion. (3) Activity 3.2 is due posted on the Web.

**Classroom Activities:** (1) Discussion of Chapter 5. (2) Analysis of Variance and discussion of 2/6 math homework.

### Day Eight (2/13)

**Preparation for Class:** (1) Poster Fieldtrip Homework due.

**Classroom Activities:** (1) Thintrix pp 113-116 focused on Water. (2) Discussion of 'Materials and Methods' based on Poster Homework and Poster Field Trip. (3) Students to be provided rubric on Materials and Methods.

## Week Five

### Day Nine (2/18)

**Preparation for Class:** (1) Read Handout on Modeling. (2) Journal Check. (3) First installment of Activity 3.3 due posted on Web. (3) Students to be provided Stella Lab Preparation Handout.

**Classroom Activities:** (1) Introduction to Modeling Dynamic Ecosystems. (2) Harvey Bootsma Title to be announced. (3) Homework on Bootsma talk to be provided; due 2/25.

### Day Ten (2/20)

**Preparation for Class:** (1) Study Stella Lab Preparation Handout.

**Classroom Activities:** (1) LAP 178 Modeling with Stella. (2) Students to be provided MMSD handout.

## Week Six

### Day Eleven (2/25)

**Preparation for Class:** (1) Homework from Bootsma talk due. (2) Read the two provided MMDS brochures and be prepared to discuss. (3) Second installment of Activity 3.3 due posted on web.

**Classroom Activities:** (1) The Hydrologic Cycle & Water Treatment. Lou's Sewer Tour Video (possibly other videos). (2) Handout on watersheds to be provided.

### Day Twelve (2/27)

**Preparation for Class:** (1) Read handouts on watersheds.

**Classroom Activities:** (1) LAP 178 Finish discussion of 2/25 (2) LAP 178 The Menomonee River: description of this watershed and historical changes related to industrialization. (3) Generate/list questions for scientists on MMSD field trip.

**Friday February 28: Fieldtrip to MMSD 8:00-1:00.**

### **Week Seven**

#### **Day Thirteen (3/4)**

**Preparation for Class:** (1) Third installment of Activity 3.3 due posted on Web. (2) Journal Check.

**Classroom Activities:** (1) Fieldtrip Debriefing. (2) Developing questions for Research Projects. (3) Explanation of homework exercise: each student to develop 2 questions related to water quality of the Menomonee River that they would like to investigate for their Research Project.

#### **Day Fourteen (3/6)**

**Preparation for Class:** (1) Each student to post on Web 2 questions related to water quality of the Menomonee River that they would like to investigate for their Research Project. Formulate a Hypothesis for each question and post on Web.

**Classroom Activities:** (1) Class discussion/evaluation of posted Project Hypotheses. (2) Form Groups for Research Projects. (3) Provide and explain Project Title assignment.

### **Week Eight**

#### **Day Fifteen (3/11)**

**Preparation for Class:** (1) Write and be prepared to present a Title for your Research Project. (2) Activity 2.2 due; each student to be prepared to discuss one good and one bad report.

**Classroom Activities:** (1) Report on Activity 2.2. Each student to be prepared to discuss one good and one bad report. (2) Class discussion and evaluation of proposed Research Project titles. (3) Students to be provided Handouts of USGS materials for class discussion on 3/13.

#### **Day Sixteen (3/13)**

**Preparation for Class:** (1) Read Introductions in USGS materials. (2) Bring materials (articles, books, etc.) related to your Research Project. (3) Begin Bibliography for Research Project. (4) Journal check.

**Classroom Activities:** (1) Discussion of Project Introductions. Students to be provided examples and rubric. (2) Literature searches on the Web. (3) Explanation of Research Project Introduction Section homework assignment; due on Web in installments: 3/25, 3/27, and 4/3.

### **Spring Break**

### **Week Nine**

#### **Day Seventeen (3/25)**

**Preparation for Class:** (1) Read Chapter four. (2) Complete Activities 4.1 and 4.2. (3) Group Research Project Introductions first installment due on Web.  
**Classroom Activities:** (1) Discussion of Chapter four stimulated by sharing responses to Activity 4.2 and 4.4. (2) Effects of water quality on organisms (creatures provided): preparation for field station fieldtrip. (3) Handouts for Cedarburg Bog field trip.

### **Day Eighteen (3/27)**

**Preparation for Class:** (1) Bog Readings: A guide to the natural history of the Cedarburg Bog. (2) Using the Introduction rubric, students to individually critique each group's introduction.

**Classroom Activities:** (1) Discussion of field trip prep materials. (Claudia) (2) Handout fresh water research article(s) on Menomonee River. (3) Handout of readings related to Dante's Peak.

### **Saturday March 29: Field Trip to Cedarburg Bog (8-5 bring lunch)**

### **Week Ten**

#### **Day Nineteen (4/1)**

**Preparation for Class:** (1) Read Chapter six. (2) Use skills from Chapter six to read handout on fresh water research from 3/27. (3) For Activity 2.3 watch Dante's Peak.

**Classroom Activity:** (1) Number 3 of Activity 2.3. (2) Dissecting a Scientific Report; we read and critique the Handout fresh water research article from 3/27.

#### **Day Twenty (4/3)**

**Preparation for Class:** (1) Second installment of Introduction due posted on Web. (2) Locate and read two research journal articles related to your Research Project question.

**Classroom Activities:** (1) Rubric on materials and methods to be provided. (2) Groups to design and present a method to test a hypothesized solution to your group's Research Project question. Describe and justify each of the following: (i) data to be collected, (ii) how data is to be collected, (iii) how to analyze data.

### **Week Eleven**

#### **Day Twenty one (4/8)**

**Preparation for Class:** (1) Read Chapter nine. (2) Complete questions 1 and 2 of Activity 9.1.

**Classroom Activities:** (1) Discussion of Chapter nine via responses to Activities 9.1. (2) Group presentations and class discussion of Research Project's Materials and Methods. (3) Rubric on discussion and results to be provided.

#### **Day Twenty two (4/10)**

**Preparation for Class:** (1) Using the materials and method rubric, write the 'Methods' section of your Research Project.

**Classroom Activities:** (1) Group work on materials and methods.

## **Week Twelve**

### **Day Twenty three (4/15)**

**Preparation for Class:** (1) Read result and discussion sections of fresh water articles provided on 3/27. (2) Journal Check.

**Classroom Activities:** (2) Class discussion on discussion and result sections of fresh water articles.

### **Day Twenty four (4/17)**

**Preparation for Class:** (1) Materials and Methods section of your Research Project due.

**Classroom Activities:** (1) Presentation and discussion of Material and Methods section of your Research Project. (2) Group discussion of discussion and results section of specified papers.

## **Week Thirteen**

### **Day Twenty five (4/22)**

**Classroom Activities:** Do it!

### **Day Twenty six (4/24)**

**Classroom Activities:** Do it!

## **Week Fourteen**

### **Day Twenty seven (4/29)**

**Classroom Activities:** Do it!

### **Day Twenty eight (5/1)**

**Preparation for Class:** (1) Repeat Activity 2.4. Post responses on web.

**Classroom Activities:** Graphics and references.

## **Week Fifteen**

### **Day Twenty nine (5/6)**

**Classroom Activities:** Conclusions

### **Day Thirty (5/8)**

**Preparation for Class:** (1) Final Journal Check

**Classroom Activities:** 'Mock up Day'

**Final Exam Period:** Students present and critique Research Projects.