Start thinking about your student Choice experiment... Here is the timeline:

• By 9:00 AM Mon Mar 11:
  — email TAs & instructor with groups

• By 9:00 AM Fri Mar 15:
  — email sent to TAs & instructor, explaining your idea
  — We will give you feedback about whether idea is ok, or if you need to find new one

• By 9:00 AM Wed Mar 20:
  — 2-3 page proposal sent electronically to TAs & instructor
    • 1 page introduction/motivation
    • 1 page methods (analytical procedure & instrument)
      — Emphasize thorough analytical approach over broad science question
      — Number of repeat samples, matrix spikes, extraction efficiencies, method comparison?
    • 1 page on chemicals needed, safety aspects, and waste generated
  — We need time to review the proposals and inform you of any obvious problems ... late proposals will deduct 30 points.

General Steps in a Chemical Analysis

• Formulate the question
• Select an analytical procedure
• Obtain samples
• Sample preparation
• Analysis
• Reporting and interpretation
• Drawing conclusions
General Steps in a Chemical Analysis

• Formulate the question  Mar 15, 9am
• Select an analytical procedure
• Obtain samples
• Sample preparation  Mar 20, 9am
• Analysis
• Reporting and interpretation
• Drawing conclusions

Hi Dr. Volkamer, Molly, (Eleanor, Laura, Jay – as appropriate)

We have formed a group of three for the Independent Project. The students are: X, Y, Z

We plan on testing soil from a garden for arsenic, and possibly chromium. This soil has been exposed to lumber treated with a chromium-copper-arsenic (CCA) compound for rot resistance. We plan to use Atomic Absorption for chemical analysis, and will submit a formal proposal sometime next week.

Thank you,
Grading

• Proposal grade (20 points):
  – 5 points – intellectual merit: have you identified an interesting project that involves concepts used in this class?
  – 15 points – clarity of procedure: have you identified appropriate extraction procedures, considered appropriate blanks etc, considered possible difficulties with the project? Have you contacted necessary people (e.g. ICP-MS facility, written permission for access to private property to collect samples)?

• Report (120 points): TBD – but a detailed procedure is critical for these projects!

• Presentations April 19 – May 3rd (45 points):
  – 2 points for attendance in student presentations per class;
  – 5 points for presentation grade graded by students (clickers)
  – Attendance required (will lose points from final grade if not attending

• Effort (35 points): In lab as necessary, students give good effort at problem solving before going to TA.

• Creativity (20 points): Use literature (past work) and laboratory experiences as a basis for your own project. The more creativity you put into your project the higher your grade.

• Total: 240 points (out of 1500)

Other methods available to you...

• ICP-MS – numbers indicate detection limit in units of ppb = parts per billion