

Atoms and Stars IST 2420 and IST 1990

Fall 2005

Sections 001, 005, 010 and 981

Instructor: David Bowen

Class #4: 9/28 and 10/3

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Tonight

- Handouts
 - Class 4 Notes
 - Campus: Corrections (from 9/26)
- Initial the sign-in sheet
- Pictures for Moodle?
 - Only IST 1990 and Partially Online IST 2420 need these

Class 3 Notes Covered

- Lamphere:
 - Did not cover Slides 13, 16
- Campus:
 - Did not cover Slides 40 - 42

IST 1990 and IST 2420 POL

- Use Moodle to get your grades for Moodle work
 - “Grades” link under “Administration”
- IST 1990 seems to be going well
- IST 2420 Summaries (see Syllabus)
 - Only for weeks you do NOT come to class
 - These do NOT replace lab reports
 - One report per lab in addition to Summaries
 - Only cover course content, not due dates etc.

IST 2420 POL

- What you should have completed by now:
 - Lab report for Experiment 1
 - Summaries for classes 2 & 3
 - Four messages in Forums, including “Introduce yourself” and “Starting Out”
- If you have done only a minimal amount, and you do not get moving *immediately*, consider dropping the course

Notes on Labs

- Do Labs 2, 3 and 8 tonight
- One at a time - finish one and put equipment away so that I can get it out of here
- Reports due one by one over next three weeks, but you can turn them all in early, if you want

Measuring Distance

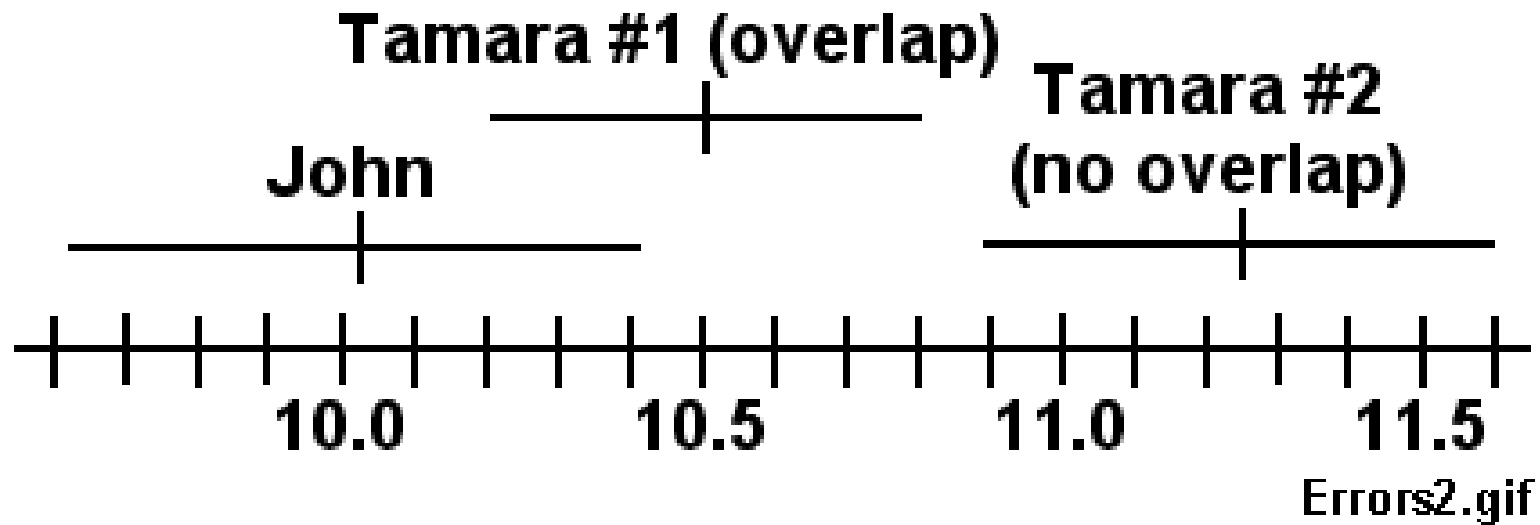
- For measuring large distances, lay long rulers end to end
 - Careful – keep count!
- Careful – yardstick is 36”, but meter sticks are longer
 - Probably best to use only 36” on meter sticks

Error on Errors

- Error in class notes
- Follow lab book: error for each measurement is *one-half* the highest minus the lowest
 - Better correspondence with full error analysis
 - Report as average \pm error
- Each measurement has an error
 - Do errors overlap?
 - See next slide

Error on Errors (cont'd)

- o Do errors overlap?
- o Compare (sum of errors – add them) to (difference between the averages – subtract them).



Lab Reports

- Data sheet – should be clear what is what
 - Setting (names, date, which Experiment)
 - Procedure
 - Observation / measurement
 - If hypotheses present, separate them clearly
 - Gets turned in as is
 - Do not bother recopying – I will not read it
- Calculations, hypotheses, answers to questions
 - Do as homework, typed

Lab Reports (cont'd)

- Additions to Syllabus:
 - o Original data sheet missing gets a C (maximum)
 - o Data sheet only with no homework gets a C (maximum)

Lab 2

- Put ice in bucket *just a minute or two* in advance
- Use straws in place of pipettes
- Magdeburg spheres (see next slide also)
 - o Two halves go together flange-to-flange
 - o Clean flanges and O-rings of any dust, grit or larger stuff
 - Use paper towel, NOT anything that could cut O-ring
 - o Liberal coating of Vaseline on O-ring to make a good seal. Also small twist (e.g. 1/2“).

Lab 2 (cont'd)

- Vacuum seal is O-ring, Vaseline and flat flange
- Valve is open when handle is in-line, closed when handle is “crossed” – look down the valve!



Lab 2 (cont'd)

- Do at home:
 - Activity 7
 - Additional Reflections

Lab 3

- Timing with SPER stop watch
 - Push “MODE” switch until top *row* of dots shows, not just one
 - Then red START/STOP starts
 - The second push stops
 - LAP/RESET zeroes time, to start over
 - Times in seconds (bigger) and hundredths (smaller), e.g. 4.26 seconds. Far left is hours.



Lab 3 (cont'd)

- In any group, four people max to use stopwatch Vs classroom clock
- Track:
 - o Must rest firmly on blocks to keep angle the same
 - o Use clay to prop it up side-to-side
 - o Time the *center* of the ball

Lab 3 (cont'd)

- Do as homework
 - o Part IE probably will be finished at home
 - o Part II Questions 9 through 12

Lab 8

- Part I (Bock and Cart):
 - Use spring to launch cart – it is repeatable
 - For launching a *block*, instead tape wheels of the cart so they do not turn
 - Next part, with wheels untaped, do not block the path of the cart. It may curve – let it go.
 - For block on top of cart:
 - Launch by pushing so that block does not slide backwards – practice
 - Crash it into hard barrier – what happens to block on top?
 - Whatever happens, let block on top complete its motion without interference

Lab 8 (cont'd)

- Part II – A, B, C
 - o Drop objects onto the mats provided
 - o Be careful dropping heavy objects six feet onto your hand – injury is possible
 - o Question 7 – use a grip that ensures both objects start falling together, and have the same distance to fall. Explain in your Procedure.

Lab 8 (cont'd)

- Do as homework:
 - Part I Questions 1 through 6
 - Part II Questions 1 through 3, 5, 6, 8 through 10

Assignments:

- Due next week:
 - Experiment 2 report
 - Essay 1, on diskette for face-to-face, via Moodle for POL
- In two weeks:
 - Experiment 3 report
- IST 1990 and IST 2420 POL: Postings *every week*
- IST 1990 Essay 1 due in three weeks
- Midterm (plus lab) coming in four weeks, review session in three weeks