

# 1 Possible Implementation Schedule

## 1.1 Using mostly new course numbers

- 2006–7 Agree on plans, recruit volunteers for new courses.
- 2007–8 Offer one (or more) sections of 121/122/123 sequence designated for physics majors and students interested in a strong background in physics. Use daily web or clicker quizzes to ensure student preparation. Use Moore as text, and cover nearly all material. Run labs for two hours, restructured to focus on only a few topics done in more depth. with the third hour per week devoted to problem solving sessions.
- Do paperwork to create Ph 223, Basic Electronics Laboratory.
  - Do paperwork to create Ph 230, Introductory Experimental Physics I.
  - Do paperwork to rename Ph 231 as Introductory Experimental Physics II.
  - Do paperwork to create Ph 233, Thermodynamics and Statistical Physics.
  - Do paperwork to create Ph 234, Quantum Dynamics I.
  - Do paperwork to create Ph 235, Particles & Symmetries.
  - Do course development for new 230, 231 (intro. expt. phys).
  - Do course development for 235 (particles & symmetries).
  - Plan 233 (stat phys) and 234 (QM I) based on modest changes to existing 328, 315.
- 2008–9 Offer all 12X courses in new format.
- Offer 223 (electronics) in place of 334.
  - Offer 233 (thermo & stat. phys) in place of 328.
  - Offer 234 (quantum I) in place of 315.
  - Offer 230/231 (expt. phys) in place of usual 231.
  - Offer 235 (particles & symmetries) for the first time.
  - Offer one or two final sections of traditional 224 & 225.
  - Do paperwork to rename Ph 321 as Electrodynamics and Radiation.
  - Do paperwork to rename Ph 322 as Kinetics and the Early Universe.
  - Do paperwork to rename Ph 323 as Macroscopic Electrodynamics.
  - Do paperwork to rename Ph 324/325 as Quantum Dynamics II & III.
  - Do paperwork to create Ph 326 as Condensed Matter Physics.
  - Do paperwork to remove Ph 224, 225, 315, 328, 334 from the books.
  - Do course development for new 321 (EM rad), 322 (kinetics), 323 (macro EM).
  - Plan modest restructuring for 324 (QM I), 325 (QM II), 326 (CM).
  - Finalize plans for 11X sequence changes — same style, conceptual goals as 12X. Possibly same book. Different applications, less quantitative. Access to same (optional) tutorials.
  - Access to same (optional) separate lab classes.
- 2009–10 Offer 11X courses in new format.
- Offer 321 (EM & radiation) in new format.
  - Offer 322 (kinetics & early univ.) for first time.
  - Offer 323 (macroscopic EM) in new format.
  - Offer 326 (condensed matter) in place of 423.
  - Do paperwork to create Ph 420, Biological Physics
  - Do paperwork to create Ph 425, Gravitation
  - Do paperwork to remove Ph 311, 423 from the books.
  - Do course development for new 420, 425.
- 2010–11 Offer 420 (biophysics) for the first time.
- Offer 425 (gravitation) for the first time.

Is all this renumbering/renaming of courses necessary? Perhaps not — we could keep more existing course numbers. But ending up with coherently numbered courses is definitely desirable. We also must cope with a mix of new and old courses during the transition period, when students in different cohorts will have different requirements. Using new numbers for new courses will help avoid confusion.

Another possibility is to teach first offerings of the 224 & 225 replacements next year. Our proposal is for these replacements to be fairly modest reworkings of the current 328 and 315, which would go away. So an important question is what do the Majors Committee folks have in mind. It would be a challenge to be ready with the other new 200-level courses next year, which is why the schedule above suggests delaying the roll-out of all new 200 level courses until 2008-9 (with new 300 level courses the following year). Moving the entire schedule up a year is conceivable but would require having real confidence that the proposed revamped 12X sequence is going to work in big non-honors classes.

## 1.2 Reusing existing course numbers

If it is judged essential to minimize the paperwork involved in new course creation, and offering both old and new 200 and 300-level courses in the same year is not deemed to be necessary, then a largely equivalent alternative scheme is:

- 2006–7 Agree on plans, recruit volunteers for new courses.
- 2007–8 Offer one (or more) sections of 121/122/123 sequence designated for physics majors and students interested in a strong background in physics. Use daily web or clicker quizzes to ensure student preparation. Use Moore as text, and cover nearly all material. Run labs for two hours, restructured to focus on only a few topics done in more depth. with the third hour per week devoted to problem solving sessions.
  - Do paperwork to create Ph 223, Basic Electronics Laboratory.
  - Do paperwork to create Ph 230, Introductory Experimental Physics I.
  - Do paperwork to create Ph 235, Particles & Symmetries.
  - Do paperwork to rename Ph 231 as Introductory Experimental Physics II.
  - Do paperwork to rename Ph 224 as Thermodynamics and Statistical Physics.
  - Do paperwork to rename Ph 225 as Quantum Dynamics I.
  - Do course development for new 230, 231 (intro. expt. phys).
  - Do course development for 235 (particles & symmetries).
  - Plan 224 (stat phys) and 225 (QM I) based on modest changes to existing 328, 315.
- 2008–9 Offer all 12X courses in new format.
  - Offer 223 (electronics) in place of 334.
  - Offer new 224 (thermo & stat. phys) in place of 328.
  - Offer new 225 (quantum I) in place of 315.
  - Offer new 230/231 (expt. phys) in place of usual 231.
  - Offer new 235 (particles & symmetries) for the first time.
  - Do paperwork to rename Ph 321 as Electrodynamics and Radiation.
  - Do paperwork to rename Ph 322 as Kinetics and the Early Universe.
  - Do paperwork to rename Ph 323 as Macroscopic Electrodynamics.
  - Do paperwork to rename Ph 324/325 as Quantum Dynamics II & III.
  - Do paperwork to create Ph 326 as Condensed Matter Physics.
  - Do paperwork to remove Ph 315, 328, 334 from the books.
  - Do course development for new 321 (EM rad), 322 (kinetics), 323 (macro EM).
  - Plan modest restructuring for 324 (QM I), 325 (QM II), 326 (CM).
  - Finalize plans for 11X sequence changes — same style, conceptual goals as 12X. Possibly same book. Different applications, less quantitative. Access to same (optional) tutorials. Access to same (optional) separate lab classes.

- 2009–10 Offer 11X courses in new format.  
Offer 321 (EM & radiation) in new format.  
Offer 322 (kinetics & early univ.) for first time.  
Offer 323 (macroscopic EM) in new format.  
Offer 326 (condensed matter) in place of 423.  
Do paperwork to create Ph 420, Biological Physics  
Do paperwork to create Ph 425, Gravitation  
Do paperwork to remove Ph 311, 423 from the books.  
Do course development for new 420, 425.
- 2010–11 Offer 420 (biophysics) for the first time.  
Offer 425 (gravitation) for the first time.