

### Schedule of Experiments:

| Week | Date                      | Lab number                                  | Lecture topics   | Reading (Fowles) | HW due | Labs due |
|------|---------------------------|---|--|------------------|--------|----------|
| 1    | Aug 29– Sept 1            | Lab 0                                       | Error analysis   |                  |        |          |
| 2    | Sept. 6 – 8               | Lab 1a: Reflection and Refraction           | Snell's Law, total internal reflection                 | 2.6, 2.7         | HW 1   | Lab 0    |
| 3    | Sept. 12 - 15             | Lab 1b: Reflection and Refraction           | Imaging, spherical surfaces                            |                  | HW 2   |          |
| 4    | Sept. 19 – 22             | Lab 2a: Geometric Optics                    | Thin lenses  | 10.1, 10.2       |        | Lab 1    |
| 5    | Sept. 26 – 29             | Lab 2b: Geometric Optics                    | Waves in three dimensions, Polarized light, Malus' Law |                  | HW 3   |          |
| 6    | Oct. 3 – 6                | Lab 3a: Polarization of Light               | Brewster's angle                                       | 2.3, 2.8         |        | Lab 2    |
| 7    | Oct. 10 - 13              | Lab 3b: Polarization of Light               | Two-beam interference, Young's double slit exp,        |                  | HW 4   |          |
| 8    | Oct. 17 - 20              | Lab 4a: Michelson Interferometer            | Michelson interferometer, Coherence                    | 3.1, 3.3         |        | Lab 3    |
| 9    | Oct. 24 - 27              | Lab 4b: Michelson Interferometer            | Fraunhofer Diffraction                                 |                  | HW 5   |          |
| 10   | Oct. 31 - Nov 3           | Lab 5a: Diffraction of Light                | Double slit diffraction                                | 5.4              |        | Lab 4    |
| 11   | Nov. 7 - 10               | Lab 5b: Diffraction of Light                | N-slit diffraction, diffraction gratings               |                  | HW 6   |          |
| 12   | Nov. 14 - 17              | Lab 6a : Atomic Spectra                     | Light quanta, Einstein coefficients                    | 5.4, 8.1, 8.2    |        | Lab 5    |
| 13   | Nov. 21 - 22              | Catch-up (if necessary)                     | <b>Thanksgiving</b>                                    |                  |        |          |
| 14   | Nov 28 - Dec. 1           | Lab 6b: Atomic Spectra                      | Population inversion, Lasers                           | 9.1 – 9.5        | HW 7   |          |
| 15   | Dec. 5 - 8<br>3 – 5:45 PM | <b>Final exam –<br/>(in class, written)</b> |  |                  |        | Lab 6    |