# Course Calendar
# Unit II: Light and Waves

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**Friday, February 18**

**(OLIN 254)**

**Topic:** "Maxwell's Equations"
**Objectives:** 2.0, 2.1

**Read:** Chap. 27: Sec. 27-3 thru 27-4;
Chap. 30: Introduction, Sec. 30-1 thru 30-2

**Assigned Problems:** **CH 30:** 2

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**Monday, February 21**

**(CARN 210)**

**Topic:** "Electromagnetic Radiation"
**Objectives:** 2.0, 2.2, 2.3, 2.4, 2.5, (2.6)

**Read:** Chap. 30: Sec. 30-3

**Assigned Problems:** **E20**; **CH 30:** 1acde, 7, 25, 27, 37

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## Tuesday, March 01

**Hand-In Set #5 due by 4:30 pm** (outside Olin 260)
**E21, E22, E23, E24**

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**Wednesday, February 23**

**(OLIN 254)**

**Topic:** "Waves and the Wave Equation"

**Objectives:** 2.0, 2.6, 2.7, 2.8, 2.9

**Read:** Chap. 15: Sec. 15-1 thru 15-2 and Sec. 15-4; optional: Sec. 15-5

**Assigned Problems:** **E25, E26**; **CH 15:** 27, 33, 36, 37, 39, 40, 43; **CH 30:** 50

**Notes:** CH 15, #40: $(4.3 - 7.5) \times 10^{14}$ Hz; $10^{10}$ Hz

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**Thursday, February 24**

**(ROOK 009)**

**Topic:** "Computer Session #2: Graphing Waves with Mathematica"

**Objectives:**

**Read:** No New Reading

**Assigned Problems:** **Computer Exercise #2**

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**Friday, February 25**

**(OLIN 254)**

**Topic:** "Superposition of Waves and Phasors"

**Objectives:** 2.0, 2.10, 2.11, 2.12, 2.13, 2.14

**Read:** Chap. 16: Sec. 13-1 thru 13-5;
Chap. 33: Sec. 33-5 (just pp. 1094-1095);
Phasor Handout.

**Assigned Problems:** **E27, E28**; **CH 16:** 1, 3, 5, 51, 59, 73, 87; **CH 33:** 45

**Notes:** Use the Phasor Method to add waves of the same frequency!
E27: wavelengths are 20 m, 10 m, 6.67 m.

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**Monday, February 28**

**(CARN 210)**

## Problem Session

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## Tuesday, March 01

**Hand-In Set #6 due by 4:30 pm** (outside Olin 260)
**E29, E30, E31, E32, E33**; **CH 15:** 44; **CH 16:** 16, 42, 44; **CH 33:** 46
Notes: Use the Phasor Method to add waves of the same frequency!

**Wednesday, March 02**

**(OLIN 254)**

**Topic:** "Interference of Waves"
**Objectives:** 2.0, 2.15, 2.16, 2.17, 2.(18)

**Read:** Chap. 33: Sec. 33-1 thru 33-3 and Sec. 33-5 (stop at Calculating the Single Slit…)

**Assigned Problems:** **E34**; **CH 16:** 24, 25; **CH 33:** 1, 17, 19, 21, 25, 31, 49
**Notes:** CH 16, #24: $A_{tot} = A$

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**Thursday, March 03**

**(ROOK 009)**

**Topic:** "Computer Session #3: Adding Waves"

**Read:** No New Reading

**Assigned Problems:** Computer Exercise #3

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**Friday, March 04**

**(OLIN 254)**

**Topic:** "Diffraction and Resolution"
**Objectives:** 2.0, 2.18, 2.19, 2.20

**Read:** Chap. 33: Sec. 33-4; Sec. 33-5 (starting from Calculating the Single Slit…) thru 33-7

**Assigned Problems:** **E35**; **CH 33:** 7, 8, 9, 37, 52a, 57, 59, 79, 87
**Notes:** CH 33, #52a: $3\pi, 5\pi, 7\pi$

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**Monday, March 05**

**(CARN 210)**

## Problem Session

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## Tuesday, March 06

**Hand-In Set #7 due by 4:30 pm** (outside Olin 260)
**E36, E37, E38**; **CH 33:** 22, 24, 32, 40, 48, 58, 64

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**Wednesday, March 09**

**(OLIN 254)**

**Topic:** "Refraction and Polarization of Light"
**Objectives:** 2.0, 2.21, 2.22, 2.23

**Read:** Chap. 31: Sec. 31-6 thru 31-7

**Assigned Problems:** **E39, E40, E41**; **CH 31:** 4, 8, 35, 39, 43, 55, 81
**Notes:** CH 31, #4: (c); CH 31, #8: (b); E40: polarized vertically (student's perspective)

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**Thursday, March 10**

**(OLIN 451)**

**Topic:** "Group Project #2"
**Objectives:**

**Read:**

**Assigned Problems:**
**Notes:**

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**Friday, March 11**

**(OLIN 254)**

**Topic:** "Waves and Particles"
**Objectives:** 2.0, 2.24, 2.25, 2.26, 2.27

**Read:** Chap. 31: Sec. 31-1;
Chap. 34: Introduction, Sec. 34-1 thru 34-2 and Sec. 34-4

**Assigned Problems:** **E42, E43**; **CH34:** 1, 3, 7, 9, 19, 23, 25, 37, 39, 67
**Notes:** Assume all speeds small compared to *c*. E42: $2.5 \times 10^{-13}$ eV

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**Monday, March 21**

**(CARN 210)**

## Problem Session

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## Tuesday, March 22

**Hand-In Set #8 due by 4:30 pm** (outside Olin 260)
**E44, E45, E46, E47**; **CH 31:** 58, 70; **CH 34:** 14, 24, 38, 72
Notes:

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| **Wednesday, March 23** | **Topic:** | "Light and Waves Review and Applications" |
| **(OLIN 254)** | **Objectives:** | 2.0 thru 2.27 |
| **Read:** | No New Reading | |
| **Assigned Problems:** | No New Assigned Problems | |

**Thursday, March 24**

**(Olin 451)** **Exam II: Light and Waves**