

BIOL 221 – Concepts of Botany; Dr. Hardy; Spring 2015
Exam 3 Guide

Ca. 50 pts of the final is on the following new topics, whereas ca. 25 pts is on material from topics covered on the first two exams.

Topic 10 – Algae

Raven Chap. 12 regarding Cyanobacteria (pp. 236-266) and Chap. 15 regarding algae (pp. 317-358)

I. What is an alga?

- A. Any* photoautotroph not in Kingdom Plantae
- B. Characteristics of
- C. Where do you find them?
- D. Evolution?

II. Green Algae

General characteristics of...

A. Unicellular

- 1. *Chlamydomonas*
- 2. *Chlorella*
- 3. *Acetabularia*

B. Colonial

- 1. *Volvox*

C. Filamentous

- 1. *Spirogyra*
- 2. *Oedogonium*

D. Planar/Thalloid

- 1. *Ulva*

III. Red Algae

General characteristics of...

A. Economic Botany

IV. Brown Algae & Diatoms

General characteristics of...

A. Browns

General characteristics of...

- 1. General Morphology
- 2. Economic Botany

B. Diatoms

General characteristics of...

- 1. General Morphology
- 2. Ethnobotany

V. Dinoflagellates

General characteristics of...

VI. Euglenoids

General characteristics of...

VII. Cyanobacteria

General characteristics of...

A. Economic Botany

Topic 11 – Bryophytes & Pteridophytes
Raven Chap. 16 and Chap. 17 (pp. 391-392, 394-427)

General Introduction to Kingdom Plantae
Meaning of Free-sporing

I. Bryophytes

Characteristics of...

A. Liverworts

B. Mosses

II. Pteridophytes

Characteristics of...

A. Rhyniophytes & Psilotophytes

B. Lycopods

C. Horsetails & Scouring-rushes

D. Ancient Coal Swamps

E. Ferns

Topic 12 – Gymnosperms

Raven Chap. 18

I. Characteristics of

A. Sporophytes

B. Gametophytes

C. Life cycle

D. Naked seed plants

E. Three groups to know

II. Cycads

A. Vegetative Morphology

B. Reproductive Morphology

C. Economic Botany

D. Biogeography & Conservation

E. Cycads & Guam Dementia

III. Conifers

A. Vegetative Morphology

B. Reproductive Morphology

C. Economic Botany

D. Biogeography & Ecology

IV. Ginkgos

A. Vegetative Morphology

B. Reproductive Morphology

C. Economic Botany

Topic 13 – Angiosperms

Raven Chap. 19 and Chap. 20, Hartley 2012 (Parksia 2: 6-7, <http://herbarium.millersville.edu/parksia/>)

I. Characteristics of Angiosperms

- A. Vessels & Fibers in Wood
- B. Sieve Tubes
- C. Flowers
- D. Angiospermous: carpels (megasporophylls) & fruits
- E. Endosperm (& Double Fertilization)

II. Pollination

- A. Bee Pollination
- B. Bird Pollination
- C. Bat Pollination
- D. Wind Pollination
- E. Deceptive Pollination

III. Angiosperm Diversity

- A. Primitive Dicots
- B. Monocots
- C. Eudicots