

University of Oregon, Departments of Biology
& Physical Education

Course: BI 199, Anatomy, Physiology & Weight Training, 04 cr, CRN 30920; Weight Training/Fitness Component: 9-9:50 TR, 37 Student Recreation Center (SRC) + Lecture/Discussion/Lab Component: 10-10:50 TR 63 SRC + Lab Observation Activities based on availability of Human Anatomy Lab 63B Klamath (KLA), Spring, 2015.
<http://blogs.uoregon.edu/bi199/spring-2015/>

Instructors: V Pat Lombardi & David Rubino

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Office Hours: M, 10:00-10:00 and by appointment.

Texts/References [All Optional]:

Lombardi, V. Pat. *Beginning Weight Training: The Safe & Effective Way*. Wm.C. Brown Company/McGraw-Hill Publishers, 1989.

Baechle, Thomas R. & Roger W. Earle. *Weight Training: Steps to Success*, 4th ed., Human Kinetics, 2012.

Fahey, Thomas D. *Basic Weight Training for Men & Women*, 7th ed. McGraw-Hill, 2011.

Marieb, Elaine N. *Anatomy & Physiology Coloring Workbook: A Complete Study Guide*, Benjamin Cummings, 2005. [Optional]

Perez, Vincent. *Quick Study Academic Anatomy Reference Guide*. Barcharts Inc, 1995.

Sherwood, LauraLee. *Fundamentals of Physiology: A Human Perspective*, 4th/3rd/2nd ed. Brooks/Cole, Thomson Learning, 2012, 2006, 1995. [On 2 hr Reserve in Science Library.]

Tentative Outline:

- Mar 31(T) *I. Introduction, Course Format & Guidelines*. Attendance & participation, thematic poster presentation, weight training/nutrition/article review, grading, expectations (the highest possible!!). *II. Anatomy vs. Physiology*. Structure vs. function, levels of organization, tissue types, joints, bones, muscles, tendons, ligaments, cartilage. *III. Weight Training vs. Weight Lifting* (63 SRC).
- Apr 2 (R) *I. Anatomy Lab Guidelines*. *II. Anatomical Position, Direction & Action Terms*. *III. Inferior-Superior & Posterior-Anterior Balances (Life is All About Balance!!)*. *IV. Anatomy of Multi-Joint Squat & Push-Pull Exercises*. Squat, bench press & lat pull (latissimus dorsi) pull. What are upper & lower extremity climbing muscles?
- Apr 7 (T) *I. Optimal Breathing Techniques*. *II. Anatomy of Lower Extremity Hip & Thigh Exercises*. Lunge, leg extension, leg curl. *III. Anatomy of Upper Extremity Shoulder & Back Exercises*. Military press & seated row.
- Apr 9 (R) *Field Trip I to Human Anatomy Lab 63B Klamath*. Time TBA.
- Apr 14 (T) *I. Benefits & Myths of Weight Training*. *II. Anatomy of Leg Press*. Squat vs. leg press? *III. Anatomy of Calf Raise: Gastrocnemius-Soleus Complex*. What does your knee have to do with leg muscle stress?
- Apr 16 (R) *Field Trip II to Human Anatomy Lab 63B Klamath*. Time TBA.
- Apr 21(T) *I. The FROM Principle; Strength vs. Local Muscular Endurance Training*. *II. Why Combine or Alternate Push with Pull? Anatomy of Arm Muscles*. Triceps extension & biceps curl. *III. Neuromuscular Connections + Super-setting Time & Relaxation Advantages*.
- Apr 23 (R) **Outline of Topic for Thematic Poster Presentation Due.** *I. Accessory Chest/Push Exercises*: Chest fly, dumbbell chest press, cable exercises, assisted dip. *II. Accessory Back/Pull Exercises*: Reverse fly, bent-over row, upright row, assisted pull-up. Pull-up vs. chin-up.
- Apr 28 (T) *I. Anatomy of Lower Back*. Back extension, Russian dead lift. *II. Anatomy of Abdominal Muscles*. Why bent-knee curl-ups/sit-ups? Abdominal boards. Twisting exercise biomechanics. Rectus abdominis (upper vs. lower?), external & internal obliques, transversus abdominis, psoas integration.

- Apr 30 (R) *I. How Muscles Work. Skeletal muscle anatomy & histology, physiology of contraction. II. How Muscles Adapt. Atrophy, hypertrophy, hyperplasia? Fiber types.*
- May 5 (T) *I. Exercise Classification Systems. II. Advantages of Dumbbells. III. Fundamental Training Principles. Homeostasis, overload & reversibility. IV. Joint-Muscle-Activity Kits (JMAK!).*
- May 7 (R) *I. American College of Sports Medicine (ACSM) Guidelines for Endurance & Strength Training. II. Importance of Heart & Vessel Health for a Lifetime!*
- May 12 (T) *I. Fundamental Training Principles. Individuality, specificity & variation. Anatomy of Power Exercises. Clean-&-jerk & snatch. Squat-push-pull in one exercise? Yes!*
- May 14 (R) No class. Open time to work on poster presentations.
- May 19 (T) **Thematic Poster Presentations Group I.**
- May 21 (R) *Field Trip III to Human Anatomy Lab 63B Klamath. Time TBA.*
- May 26 (T) **Thematic Poster Presentations Group II.**
- May 28(R) *Field Trip IV to Human Anatomy Lab 63B Klamath. Time TBA.*
- Jun 2 (T) **Thematic Poster Presentations Group III.**
- Jun 4 (R) **Thematic Poster Presentations Group IV.**
- Jun 9 (T) **Textbook/Alternative Review Due <= 5 pm.** E-mail review comments to lombardi@uoregon.edu.

Grading: Your final grade will be based on the following:

Attendance, Participation, Lab Activities*	30%
Weight Training/Fitness Component	30%
Thematic Poster Presentation	30%
Weight Training/Nutrition Article/Media Review	10%

*As with the weight training/fitness component of the course, a passing grade in the lecture/discussion/lab portion of the course requires active participation in 80% or more of the total class meetings and laboratories.

- 1. Course Title & Description.** Anatomy, Physiology & Weight Training. This 1st-year seminar maximizes applications of basic and applied sciences in laboratory and exercise settings and includes structure-function lectures, exercise technique discussions, anatomy laboratories, and hands-on exercise sessions. The goals are to promote: (1) a respect for the intricacies and diversities of human body structure and function, (2) an understanding of the anatomical and physiological basis underlying human movement, (3) safe and effective weight training techniques, and (4) a life-time interest in weight training as one means of enhancing multiple components of health-related fitness. Students will read approximately 15-20 pages per week, participate in a variety of lab/exercise activities and discussions, develop and present a thematic poster presentation, and make written, review suggestions on a weight training/nutrition article of their choice.
- 2. Method of Instruction.** Includes engaging lecture/open discussions (relaxed lecture/discussion format with students encouraged to participate freely and ask questions), weight room exercise periods, anatomy/cadaver lab activities, bone-joint-tendon-muscle group work, joint-muscle-activity kit group work, and electronic-media presentations. For details, please see the course outline.
- 3. Tentative Course Outline.** Subject to modification based on facility availability.
- 4. Course Requirements.** Includes outside reading, attendance at lectures, participation in labs/activities, thematic poster presentation (topic of student's choice), and article/media review.
- 5. Grading Criteria.** Attendance, participation & lab activities 30% of grade (graded strictly according to percentage, e.g., 20/20 = 100%, 19/20 = 95%); weight training/fitness component 30% of grade (score from weight room & fitness component of course); thematic poster presentation 30% of grade (instructor 50% + peer-review 50% grading from standardized worksheet: clarity of introduction, anatomy/physiology/weight training information, depth of coverage, question-&-answer period, and subjective evaluation of participation in project); and article/media review 10% of grade.