PDP FT 212 Advanced Weight Lifting

Instructor: Instructor will vary by semester
Email: groupex@bu.edu
Phone: 617-358-3760
Meets twice per week: 1.0 Credit

Course Description:
A course in the advanced principles and methods of strength training using high skill level techniques and exercises. Improve muscle strength, tone, endurance and body composition with sensible safe weight training.

Course Goals:
As a result of successfully completing this course, the student will be able to:
- Identify the benefits of exercise and the principles of effective/safe exercise
- Explain the health benefits of aerobic exercise, flexibility training, and muscular strength training.
- Develop a periodized strength training program based on goals
- Demonstrate ability to create individualized weight-training programs
- Administer pre and post fitness tests using specified protocol
- Define and understand advanced training strategies and programs

Grading Policy:
This class will be graded Pass/Fail, based on attendance. Please visit the Registrar’s website often to view relevant deadlines! Below is a list of possible grades you may receive in this class:

P – Pass: Completed course requirements, 80% or more classes attended

W – Withdraw: If you drop this class after the specified deadline, you will receive a “W” grade.

MG - Missing Grade: If you decide you do not want to take this course, but forget to drop it, this grade will appear on your transcript. You will still be allowed to graduate and it will not affect your overall GPA, however you are strongly encouraged to drop this course within the allotted deadline to avoid this grade. Dropping before the deadline will remove this class from your transcript entirely.

I –Incomplete: If you fail to meet the attendance requirements of this course, you will receive an “I” until you have made up all missed classes. Please make arrangements with your instructor to do so within the following semester. Your grade will be changed to a “P” once you have made up all classes.

AU- Audit: If you intend to audit this class, please fill out and ask your instructor to sign a Class Adjustment/AU form and turn it in to the Registrar’s Office by the deadline.

F- Fail: It is very unlikely that you will receive a failing grade. Your instructor is happy to work with you to make up any missed classes. A grade of “F” will only be given in extenuating circumstances.
Attendance Policy & Make-Up Classes:
Because this class is graded solely on attendance and learning is cumulative, it is important that you attend each class. You will need an 80% attendance record to receive a passing grade. You are allowed 5 unexcused absences. Excused absences (such as illness or injury with a doctor's note or death of a family member) will not count against your attendance record. If you have more than 5 unexcused absences, you will need to arrange to make up the classes you have missed. You can do this by attending any section of FT 112, FT 114, or FT 115.

Please contact the instructor of the make-up class that you would like to attend so that they can plan accordingly. It is your responsibility to keep track of your attendance record and make up any classes you have missed.

Blackboard, FitRec Website & Course Evaluation:
A Blackboard course site may be available for this class online at http://www.learn.bu.edu and can be accessed by entering your BU username and password. All students enrolled in this class should have access to this site, even if your school does not use Blackboard. This site will give you access to the course syllabus, any additional content, and allow you to email other students in this class. Emergency cancelations as well as other announcements may also be posted here.

For a broader explanation of PDP credit class policies, information on registration, or schedules please visit the FitRec's website: http://www.bu.edu/fitrec/about/physical-education/

Course evaluations will be sent via email at midterm and at the end of the semester. Please take the time fill these out – your feedback is very important to us!

Student Conduct:
Boston University’s codes of conduct are enforced at the Fitness and Recreation Center at all times. Use of Boston University facilities is a privilege and participants are expected to be good citizens and respect the rights of others. Individuals who engage in unacceptable or irresponsible behavior may have their access to the Fitness and Recreation Center revoked or modified indefinitely as determined by the Executive Director of Physical Education, Recreation and Dance. Students may be subject to further university disciplinary action as outlined in the Boston University Code of Student Responsibilities (www.bu.edu/dos/policies/student-responsibilities).

Curriculum:

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**Topic: Pre-Test/Benefits and Barriers to Exercise**

We will be using this week to test students on strength, endurance, and flexibility within the domain of the class. Specific tests will be your instructor.

**Benefits of Exercise**
- Improved cardiovascular endurance
- Decreased risk of developing chronic disease
- Increased muscular strength
- Increased energy level
- Improved sleep
- Increased bone mass
- Decreased Stress level

**Barriers to Exercise**
- Difference between physical activity and exercise
  - Physical activity - unplanned
    - Examples: Parking further away and walking, taking stairs instead of elevator, walking instead of taking the bus, T, or car
  - Exercise - planned
    - Examples: Running, lifting weights, group exercise class
- Common Barriers to exercise
  - Lack of time
    - Solution: Cut out some TV
  - Lack of motivation
    - Solution: Go with a friend who has similar goals
  - Too Tired
    - Solution: Working out gives you more energy!
  - Not knowing how to exercise properly
    - Solution: Ask us for help!

**5 Components of Physical Activity**
1. Cardiovascular
2. Strength
3. Endurance
4. Flexibility
5. Body Composition

**Topic: Training Goals and Volume**

Training volume is the amount of sets and repetitions (reps) per workout, and is directly related to an individual’s training goal.

**Strength** - Use maximum weight for 2-6 sets with 6 or fewer reps per exercise.

**Power** - Perform 1-2 explosive reps for 3-5 sets per exercise. Power programs use a lower training volume in order to maximize the explosiveness and quality of each repetition.

**Hypertrophy** - Hypertrophy is increased muscular size. Use a moderate weight for 3-6 sets of 6-12 reps per exercise.
Muscular Endurance - Muscular endurance is a muscle’s ability to clear lactic acid. Programs should use a lighter weight for 2-3 sets of 12+ reps per exercise.

<table>
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<tr>
<th>Training Goal</th>
<th>Goal Repetitions</th>
<th>Sets</th>
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<tbody>
<tr>
<td>Strength</td>
<td>≤6</td>
<td>2-6</td>
</tr>
<tr>
<td>Power</td>
<td>1-2</td>
<td>3-5</td>
</tr>
<tr>
<td>Hypertrophy</td>
<td>6-12</td>
<td>3-6</td>
</tr>
<tr>
<td>Muscular Endurance</td>
<td>≥12</td>
<td>2-3</td>
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For more information about our personal training services visit our website (www.bu.edu/fitrec) or call - (617) 358-3760. Follow us on Twitter @Fitrec

Personal Training Packages
- 1 Personal Training Session:: $65
- 5 Personal Training Session:: $285
- 10 Personal Training Session: $425

Semi-Private Personal Training (Groups of 2)
- 1 Personal Training Session:: $50
- 5 Personal Training Session:: $180
- 10 Personal Training Session: $290

Personal Training Services
- Fitness Evaluation: $60
  - A comprehensive evaluation session that includes assessments for cardiovascular fitness, muscular strength and endurance, body composition, flexibility and posture. Your results will be sent to you via email.

- Fitness Evaluation + 1 Personal Training Session: $130
  - Includes the comprehensive fitness evaluation plus a second session with the Personal Trainer. The second session includes a 30-minute consultation/feedback and a 30-minute program design training session.

- Program Design: $65
  - This one-session personal training option is ideal for the college student or adult looking for more direction with their workout. It includes a program design that will be prepared by the personal trainer with specific exercises and recommendations based on your goals. Your session will go over the workout leaving you with an individualized program to follow on your own.

- Body Composition Analysis: $20
  - Skinfold calipers are used to measure percentage of body fat. Participants should come dressed in t-shirts and shorts.
**Topic : Benefits of Flexibility/Static Stretching**

**Flexibility**: is the range of motion (ROM) in a joint or series of joints that reflects the ability of the musculo-tendon structures to elongate within the physical limitations of the joint. The two basic types are dynamic and static. Flexibility decreases “overuse” injuries.

<table>
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<th>Benefits of Flexibility Training</th>
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<tr>
<td>Increases joint range of motion</td>
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<tr>
<td>Relieves joint stress</td>
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<tr>
<td>Improves elasticity of muscles and connective tissue</td>
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<tr>
<td>Improves neuromuscular efficiency</td>
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<tr>
<td>Improves overall function required during daily chores and recreational activities.</td>
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**Static stretching**: A form of stretching in which the muscle to be stretched is slowly put into a position of controlled maximal or near-maximal stretch by contraction of the opposing muscle group and held for 30-60 seconds. Static stretching involves stretching muscles while the body is at rest. Stretching helps keep you flexible. When performed correctly, static stretches help lengthen tight muscles, preventing injury, and improve balance and overall fitness. Stretching can also help relieve stress.
Dynamic stretching comprises controlled movements, such as leg and arm swings, that slowly bring the muscles close to their range of motion limit without exceeding it. This type of stretching is ideal before sporting events, weight-bearing exercise sessions that involve the whole body, or training involving quick changes of direction. Dynamic stretching is meant to prepare the muscles for the activity at hand. Examples include torso twists, arm circles, knee-high jogs, stretching lunge walks and standing leg lifts or circles.
Include: Lunges with lean, side lunge with heel touch, lung twists, straight leg kicks, knee into chest, arms swings and circles, side bends, forward/sideways leg swings, hacky-sacks, high knees, butt kicks, hip circles, running carioca.

**Topic: Nutrition and Ergogenic Aids**

**Nutrient** – Specific substance found in food that performs one or more physiological or biochemical function in the body.

**6 Major Classes of Nutrients**

- **Protein** - Builds and repairs body tissue
- **Carbohydrates** - Provide energy for the body
- **Fat** - Necessary part of every cell; protects internal organs; carries fat soluble vitamins
- **Vitamins + Minerals** - Regulate body processes
- **Water** - Important for numeros chemical reactions in body
  - Most predominant nutrient
  - 60% of the human body is made up of water
  - Body fluids = water-bring exact ingredients to each system and carry away by-products
    - Active in chemical reactions in body
    - Acts as lubricant around joints
    - Protects sensitive tissues and organs from shock

The next in abundance (after water) are the **3 energy nutrients:**
1. **Carbohydrates**, fats, protein (less for energy)
2. Energy nutrients: all contain calories to be used for energy
3. Energy for heat: build its structures to move its parts or stores as body fat
Please use Choose My Plate to calculate individual nutrition recommendations: http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html

**Topic : Plyometrics**
Plyometric: From the Greek (Plio – more; Metric- measure)
- Refers to activities that enable a muscle to reach maximal force in the shortest possible time.
- Quick and Powerful Movements

Purpose of plyometric exercises:
- Utilize a pre stretch, or countermovement that involves the stretch shortening cycle (SSC)
- The elastic strength of a muscle is the ability of this muscle/tendon “system” to fire with the same power output repeatedly over time (i.e. immediate second jump of a basketball player for height)

Built for POWER:
- Function of all active muscles + Speed of these muscular force = POWER
- The rate of musculotendinous stretch is vital to plyometric exercises
- High rate of stretch = Greater muscle recruitment
- As rate of stretch increases, Absolute performance increases

**Involves: Mode, Intensity, Frequency, Recovery, Volume, Progression**

- **Mode**: Targeted body region
  - Lower Body (i.e. single leg hop)
  - Upper Body (i.e. Med Ball Throw)

- **Intensity**: Amount of stress placed on muscles and joints
- Low intensity (i.e. skipping)
- High Intensity (i.e. Box Jumps)

**Frequency:** Number of plyometric training sessions per week
- In season: 1x/week
- Off season: 2-3x/week

**Recovery:** Sets are determined by work to rest ratio (1:5 to 1:10)
- High intensity plyometric (Depth Jumps)
- 5-10 secs of rest between reps and 2-3 minutes rest between sets
- Drills for a given body area should not be performed 2 days in succession.

**Volume:**
- Lower body plyometrics - # of foot contacts
- Upper body plyometrics - # of throws or catches

**Progression:** As intensity increases, volume decreases
- Examples Include:
  - Jump/Clap push-ups, Side throws (med ball), chest throws (med ball), med ball slams, Burpees, Squat/Box Jumps, jump split squats, squat throws (med ball)

**Topic: Controversial/High Risk Moves**
- Ballistic stretching
- Bouncing stretches
- Hurdler’s stretch
- Full straight-leg sit-ups
- Forced high kicks
- Deep knee bends
- Plough
- Full cobra
- V-sits
- Dead lifts
- Behind-the-neck lat pull-down
- Unsupported flexion of the lumbar spine
• Unsupported flexion with rotation
• Unsupported lateral flexion of the lumbar spine

• Hyperextension of the cervical spine/ Percussive lumbar hyperextension
• Arching back/spine while standing