12-60C
AP-11/13/12
Senate: APP-12/4/12

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

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Proposing Department/Unit Health and Physical Education	Phone 357 7835

Check all appropriate lines and complete all information. Use a separate cover sheet for each course proposal and/or program proposal.

1. Course Proposals (check all that apply)

__X__ New Course _____ Course Prefix Change _____ Course Deletion

_____ Course Revision _____ Course Number and/or Title Change _____ Catalog Description Change

Current course prefix, number and full title:

Proposed course prefix, number and full title, if changing: HPED 416 Functional Training for Strength & Conditioning

4. Program Proposals

_____ Catalog Description Change _____ Program Revision _____ Program Title Change _____ New Track

_____ New Degree Program _____ New Minor Program ____ Liberal Studies Requirement Changes _____ Other

Current program name: *Physical Education and Sport – Exercise Science*

Proposed program name, if changing: _____

5. Approvals	Signature	Date
Department Curriculum Committee Chair(s)		9-17-12
Department Chairperson(s)		9-17-12
College Curriculum Committee Chair		10-16-12
College Dean		10/18/12
Director of Liberal Studies (as needed)		
Director of Honors College (as needed)		
Provost (as needed)		
Additional signature (with title) as appropriate		
UWUCC Co-Chairs		11/16/12

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Received
OCT 24 2012
Liberal Studies

Received
NOV 16 2012
Liberal Studies

Part II. Description of Curricular Change

SYLLABUS OF RECORD

I. Catalog Description

HPED 416 Functional Training for Strength and Conditioning — 3 class hours, 0 lab hours

Prerequisites: HPED 343 and 375 with a "C" or better — 3 credits

(3c-0l-3cr)

Focuses on comparing and contrasting the scientific principles associated with traditional strength training and functional strength training techniques. Examines a variety of new techniques found in the fitness and sport performance industry and provide practical experience for the students in both traditional and functional strength training techniques.

II. Course Objectives

The students will be able to:

1. Identify the advantages and limitations between traditional and functional strength training.
2. Evaluate the current professional resources and certifications associated with traditional and functional strength training.
3. Compare and contrast the physiological benefits and scientific principles of traditional strength training verses alternative strength training methods.
4. Demonstrate the proper execution of various traditional and functional strength training techniques.
5. Develop and teach the proper execution of the various traditional and functional strength training techniques.
6. Critically evaluate the research supporting the benefits of functional and traditional strength training techniques.

III. Course Outline

A. Define traditional strength training verses functional strength training. (2 hrs)
   1. Traditional strength training – isolation of muscle groups
   2. Functional strength training – training movement of isolated muscles
   3. Training in multiple planes verses training in one plane

B. Physiological benefits of strength training. (2 hrs)
   1. Basic definitions of muscle physiology
   2. Neuromuscular anatomy and adaptations

3. Bioenergetics of strength training
4. Bone, muscle, and connective tissue adaptations

C. Benefits and limitations for traditional strength training vs. functional strength training. (2 hrs)
   1. Physical benefits of traditional strength training
   2. Physical benefits of functional strength training
   3. Cost comparison of traditional and functional strength training programs
   4. Application of traditional and functional strength training to a variety of populations

D. Explore and evaluate current use of the various functional training modalities in the fitness industry. (5hrs)
   1. Introduction of professional resources for functional training
   2. Introduction of traditional strength training in the fitness industry
   3. Olympic lifting for performance enhancement of athletes
   4. Comparison of traditional and functional strength training in the general fitness industry
   5. Comparison of traditional and functional strength training for sport performance

E. Critically evaluate the scientific research on traditional verses functional strength training. (3hrs)
   1. Introduction to professional review of equipment and training methods
   2. Comparison of research for traditional and functional strength training modalities
   3. Discuss application of research to development of individualized programs

F. Execution of Olympic lifts and various functional training modalities. (6hrs)
   1. Safety precautions associated with traditional and functional strength training
   2. General lifting and performance technique principles
   3. How to teach Olympic lifts
   4. How to teach functional strength training techniques

G. Student demonstrations of the Olympic lifts associated with traditional strength training. (5hrs)

H. Student demonstrations of functional strength training modalities. (7hrs)

I. Evaluate the current industry certifications in a variety of functional training modalities. (4hrs)
   1. Introduction of certification process
   2. Evaluation of various agencies/associations offering certifications
   3. Evaluation of credibility of certification within the health and fitness industry

J. Student presentations of programs developed for classmate based on individualized needs and goals. (6hrs)

Final (2 hours)

IV. Evaluation Methods

The final grade will be determined as follows:

A. 20%- Project: Development of functional training program for classmate
B. 20% - Student demonstration of traditional/functional training exercise(s)
C. 20% - Homework – readings and reflections
D. 20% - Paper – review of current application in the fitness industry for an assigned functional training modality or exercise.
E. 20% - Final, cumulative.

V. Grading Scale: A: ≥90% B:80-89% C: 70-79% D: 60-69% F: <60%

VI. Attendance Policy

The course attendance policy will be consistent with the university undergraduate attendance policy included in the undergraduate catalog.

VII. Required Textbooks, Supplemental Books and Readings

Gambetta, Vern. (2007). *Athletic Development, The Art and Science of Functional Sports Conditioning.* Champaign, IL: Human Kinetics.

Supplemental Resources:

Prepared packet of course material will be made available for purchase.

VIII. Special Resource Requirements

Required readings for this course will include a number on of on-line resources.

IX. Bibliography

Aartun, J., Ervin, M., Halewood, A., ... Scheet , T. (2009). Proceedings from the Annual Meeting of the American College of Sports Medicine 2009: *An Evaluation of the TRX Suspension Training System.* Seattle, WA.

Bakhtiary, A. H., Safavi-Farokhi, Z., Aminian-Far, A. (2007). Influence of vibration on delayed onset muscle soreness following eccentric exercise. *British Journal of Sports Medicine*, *41*(3), 145-148.

Baechle, T. R., Earle, W.R. (2008). *Essentials of strength training and conditioning*, (3rd ed.). Champaign, IL: Human Kinetics.

Beach, T. A., Howarth, S.J., & Callaghan, J.P. (2008). Muscular contribution to low-back loading and stiffness during standard and suspended push-ups. *Human Movement Science*, *27* (3), 457-472.

Carriere, B. (1998). *The swiss ball: theory, basic exercises and clinical application.* New York, NY: Springer-Verlag.

Castellano, J. (2009). Metabolic demand of the kettlebell workout routine. *Medicine & Science in Sports& Exercise*, *41* (5), 137-138.

Clark, M. A., Lucett, S. C., & Sutton, B. G. (2012). *NASM essentials of personal fitness training,* (4th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Colado, J.C., Garcia-Masso, X., Pellicer, M., Alakhdar, Y., Benavent, J., & Cabeza-Ruiz, R. (2010). A comparison of elastic tubing and isotonic resistance exercises. *International Journal of Sports Medicine* , *31* (11), 810-817.

Cook, G. (2003). *Athletic body in balance.* Champaign, IL: Human Kinetics.

Cook, G. (2010). *Movement: functional movement systems.* Champaign, IL: Human Kinetics.

Delecluse, C., Roelants, M., & Verschurern, S. (2003). Strength increase after whole-body vibration compared with resistance training. *Medicine & Science in Sports & Exercise*, *35*(6), 1033-1041.

Dolny, D.G., & Reyes, G.F. (2008). Whole body vibration exercise : training and benefits. *Current Sports Medicine Reports, 7* (3), 152-157.

Dudgeon, W.D., Aartun, J.D., Herrin ,J., Thomas, D. D., & Scheett T.P. (2010). Metabolic responses during and following a suspension training work-out. *Medicine & Science in Sports & Exercise. 42* (5 Suppl), 695-696.

Flecther, I.M., & Hartwell ,M. (2004). Effects of an 8-week combined weights and plyometrics training program on golf drive performance. *Journal of Strength and Conditioning Research*, *18* (1), 59-62.

Fleck S.J., & Kraemer ,W.J. (1997) *Designing resistance Training Programs*, (2nd ed.). Champaign, IL: Human Kinetics.

Manocchia, P., Spierer ,D.K., Minichiello, J., Braut ,S., Castro, J., & Markowtiz, R. (2010). Transference of kettlebell training to traditional Olympic weight lifting and muscular endurance. *Journal of Strength and Conditioning Research, 1,* 24-33.

Marín, P.J., & Rhea, M.R. (2010). Effects of vibration training on muscle power: a meta-analysis. *Journal of Strength and Conditioning Research, 24* (3), 871–878.

McGill, S. (2007). *Low back disorders: evidence-based prevention and rehabilitation.* (2nd ed.) Champaign, IL: Human Kinetics.

Page, P. (2003). *The Scientific and Clinical Application of Elastic Resistance.* Champaign, IL: Human Kinetics.

Sheett, T.P., Aarun, J.D., Thomas, D.D., Herrin, J., & Dudgeon, W.D. (2010). Physiological markers as a gauge of intensity for suspension training exercise. *Medicine & Science in Sports & Exercise*, *42*(5 Suppl), 696.

Sternlicht, E., Rugg, S., Fujii, L.L., Tomomistsu, K.F., & Seki, M.M. (2007). Electromyographic comparison of a stability ball crunch with a traditional crunch. *Journal of Strength Conditioning Research*, *21* (2), 506-509.

Tsatsouline, P. (2006). *Enter the kettlebell! strength secret of the soviet supermen.* St. Paul, MN: Dragon Door Publication.

Vissers, D., Verrijken, A., & Mertens, I. (2010) Effects of long-term whole body vibration training on visceral adipose tissue: a preliminary report. *Obesity Facts, 3,* (2) 93-100.

2. COURSE ANALYSIS QUESTIONNAIRE

Section A: Details of the Course

A1 How does this course fit into the programs of the department? For what students is the course designed? (majors, students in other majors, liberal studies). Explain why this content cannot be incorporated into an existing course.

The course will address current trends in functional strength training that provide an alternative to the traditional strength training principles. Due to the dynamic environment in the fitness industry it is imperative that students are able to evaluate the newest techniques as they enter the market.

A2 Does this course require changes in the content of existing courses or requirements for a program? If catalog descriptions of other courses or department programs must be changed as a result of the adoption of this course, please submit as separate proposals all other changes in courses and/or program requirements.

This course does not require changes in the content of existing courses or requirements for a program.

A3 Has this course ever been offered at IUP on a trial basis (e.g. as a special topic) If so, explain the details of the offering (semester/year and number of students).

This course has never been offered at IUP on a trial basis.

A4 Is this course to be a dual-level course? If so, please note that the graduate approval occurs after the undergraduate.

This course will be proposed as a dual-level course.

A5 If this course may be taken for variable credit, what criteria will be used to relate the credits to the learning experience of each student? Who will make this determination and by what procedures?

This course is not to be taken as variable credit.

A6 Do other higher education institutions currently offer this course? If so, please list examples (institution, course title).

The following courses address current trends in the fitness industry:

Edinboro University: HPE222-Principles of Fitness Instruction.
Slippery Rock University:ERS302-Exercise Leadership: Resistance Training.
Penn State University: Kines497C-Special Topics in Kinesiology.
Iowa State University: Kin266-Advanced Strength Training and Conditioning.

A7 Is the content, or are the skills, of the proposed course recommended or required by a professional society, accrediting authority, law or other external agency? If so, please provide documentation.

No.

IUP's Exercise Science program is accredited by the Commission on Accreditation of Allied Health Education Programs according to standards established by the Committee on Accreditation for the Exercise Sciences.

Section B: Interdisciplinary Implications

B1 Will this course be taught by instructors from more than one department? If so, explain the teaching plan, its rationale, and how the team will adhere to the syllabus of record.

This course will be taught by an Exercise Science faculty member.

B2 What is the relationship between the content of this course and the content of courses offered by other departments? Summarize your discussions (with other departments) concerning the proposed changes and indicate how any conflicts have been resolved. Please attach relevant memoranda from these departments that clarify their attitudes toward the proposed change(s).

This course does not overlap with any other courses offered in other departments.

B3 Will this course be cross-listed with other departments? If so, please summarize the department representatives' discussions concerning the course and indicate how consistency will be maintained across departments.

This course will not be cross-listed with other departments.

Section C: Implementation

C1 Are faculty resources adequate? If you are not requesting or have not been authorized to hire additional faculty, demonstrate how this course will fit into the schedule(s) of current faculty. What will be taught less frequently or in fewer sections to make this possible? Please specify how preparation and equated workload will be assigned for this course.

As this course is required to maintain accreditation and meet the needs of students seeking employment in the growth field of strength and conditioning, courses within Exercise Science will be sequenced and workloads will be adjusted to teach this course once/academic year.

C2 What other resources will be needed to teach this course and how adequate are the current resources? If not adequate, what plans exist for achieving adequacy? Reply in terms of the following:

***Space**-Lecture space is adequate as is the Zink Fitness Center and Gym for the practical based portion of the course.
***Equipment**- Equipment for this course is currently available through the Human Performance laboratory and may require the purchase of specialized Equipment in the future.
***Laboratory Supplies and other Consumable Goods**- Current lab equipment is adequate for course

***Library Materials** – Current library holdings are adequate.
***Travel Funds**-No travel funds are required.

C3 Are any of the resources for this course funded by a grant? If so, what provisions have been made to continue support for this course once the grant has expired? (Attach letters of support from Dean, Provost, etc.)

No grant funds are required for this course.

C4 How frequently do you expect this course to be offered? Is this course particularly designed for or restricted to certain seasonal semesters?

This course will be offered on a once/year schedule.

C5 How many sections of this course do you anticipate offering in any single semester?

One section of course is anticipated any single semester.

C6 How many students do you plan to accommodate in a section of this course? What is the justification for this planned number of students?

Due to the practical nature of the course the number of students per section is limited to 30 students.

C7 Does any professional society recommend enrollment limits or parameters for a course of this nature? If they do, please quote from the appropriate documents.

No.

C8 If this course is a distance education course, see the Implementation of Distance Education Agreement and the Undergraduate Distance Education Review Form in Appendix D and respond to the questions listed.

This course is not a distance education course.

Section D: Miscellaneous

Include any additional information valuable to those reviewing this new course proposal.

None

Proposed Catalog Description

HPED 416 Functional Training for Strength and Conditioning **3c-0l-3cr**
Prerequisites: HPED 343 and 375 with a "C" or better

Focuses on comparing and contrasting the scientific principles associated with traditional strength training and functional strength training techniques. Examines a variety of new techniques found in the fitness and sport performance industry and provide practical experience for the students in both traditional and functional strength training techniques.