



THE OHIO STATE UNIVERSITY

COLLEGE OF
EDUCATION AND HUMAN ECOLOGY

Academic Affairs

College of Education and Human Ecology

A100 PAES Building

305 Annie and John Glenn Ave

Columbus, OH 43210

Memo

April 18, 2023

To: W. Randy Smith, Vice Provost – Council on Academic Affairs

From: Aaron Bagent, Curriculum Specialist

RE: Program Revision – B.S. Ed. Exercise Science Education, Department of Human Studies

Please find the proposal materials included to revise the Exercise Science Education program. These materials include:

1. Letter of support from Sue Sutherland, Associate Department Chair
2. Letter of Rationale from Carl Maresh, Exercise Science Program Chair
3. Updated syllabus
4. Old program sheet
5. New program sheet

This was presented as an informational item at the College of Education and Human Ecology Curriculum Committee meeting on April 17, 2023. If there are any questions, please contact me at bagent.14@osu.edu.



April 6, 2023
Aaron Bagent
Curriculum Specialist
College of Education and Human Ecology Office of Academic Affairs

Dear Aaron:

I am writing in support of the following change in course requests, **effective Autumn 2023**:

1. **CSFRST 3416**: Theory in Strength and Conditioning
 - a. Change course number from 3416 to 5416

Rationale: This change will allow for both undergraduate and graduate enrollment

Attached you will find necessary documentation from Carl Maresh. These changes have been approved by faculty in the Exercise Science program. Review of and approval from members of the Department of Human Sciences Undergraduate Studies Committee has also been obtained.

There are currently no negative budgetary implications and no additional funds or human resources necessary for execution of this course change. Thus, I am in support of the proposed changes as outlined by Carl Maresh in the attached documents.

If you have any questions or need additional information, do not hesitate to contact me.

Sincerely,

Sue Sutherland, PhD

Pronouns: she/her/hers

Professor, Associate Department Chair

College of Education and Human Ecology



DATE: March 29, 2023

TO: DHS Undergraduate Curriculum Committee

FROM: Carl M. Maresh, Exercise Science Representative

RE: Change in Course Number: KNHES 3614 to 5416 level

With the current and anticipated future increase in the number of students entering both the thesis track and non-thesis track master's degree program in exercise science, it is our desire to convert certain undergraduate classes (3000 and 4000 level) to 5000 level status.

Among these is KNHES 3416 (Theory of Strength and Conditioning). This course was initially designed by Dr. William Kraemer as a core requirement for undergraduate students, but it is now apparent that it has equal or greater value as a graduate course offering with great across campus appeal. This change has been approved by the health and exercise science faculty.

We hope to offer this as a KNHES 5000 level course beginning Autumn 2023.

Presented here is a revised syllabus reflecting the differentiation of course requirements for undergraduate and graduate students taking this course. There are two copies attached, KNHES 3416 and KNHES 5416. The syllabi designated as KNHES 5416, shows these differences for graduate students highlighted in yellow.

We suggest that the course number be changed from KNHES 3416 KNHES 5416.

Respectfully submitted.

Carl Maresh

Carl M. Maresh, PhD, FACSM, FNAK

Professor and Director, Human Performance Laboratories
Exercise Science Program Chair, **Department of Human Sciences**
A050 PAES Building | 305 Annie & John Glenn Avenue
The Ohio State University
Columbus, OH 43210
614-292-3675 Office
maresh.15@osu.edu



KNHES 5416 - Theory of Strength and Conditioning

Autumn 2023, 3 Credit Hours, UG/G

Instructor: John Paul Anders, PhD, CSCS, CISSN

Email address anders.62@osu.edu office phone 614-247-8096

Course Times and Location: In Person MWF 11:30 to 12:25 PM

Office hours: Monday 3-4 PM and upon appointment

Course Overview

Description / Rationale

This in-person lecture course will examine the fundamental principles and theories that are the basis of strength and conditioning that allow for workout and training program design. The course is designed to give students the scientific and practical basis for developing, designing, evaluating, and implementing resistance training programs. Including:

- Resistance training concepts from developing a “needs analysis”, understanding the impact of the various acute program variables in workout design and the how periodization strategies can be used for chronic training progressions.
- Understanding different conditioning programs from aerobic endurance, flexibility, agility, balance, etc. along with how to deal with integration of different conditioning programs and their compatibility for adaptation will also be addressed (e.g., strength/power vs aerobic endurance).
- Basic physiological principles (e.g., Size Principle), theories (e.g., Sliding Filament Theory), and concepts (e.g., overtraining) needed for understanding exercise prescriptions and training program progressions for men and women across the life span including athletes will be examined.
- Students will gain experience reading and interpreting peer-reviewed literature that informs the principles of strength and conditioning taught in class.
- Graduate students will develop the skills to present peer-reviewed research to their colleagues related to modern concepts in strength and conditioning.
- This course will also serve as a valuable preparation tool for those students interested in taking the National Strength and Conditioning Association's (NSCA) certification exams. Ultimately, this course is designed to give students the scientific and practical basis for developing, designing and implementing resistance training programs having a broad range of needs and contexts for practice.

Relation to Other Courses

This course expands on the content in KNHES 3415 for exercise prescription and conditioning concepts.

Prerequisites: KNHES 3414 or graduate standing

Prerequisite Knowledge: Basic understanding of human anatomy and physiology.

Learning Objectives

The content of specific lectures will be addressing the various individuals served by the development and implementation of a strength and conditioning program.

Thus, by the end of this course, students should successfully be able to:

1. Understand the basic physiological and biomechanical principles involved with strength and conditioning programs and implementation. (Addressed by content in the Course Schedule - Weeks 1-5)
2. Develop a “needs analysis” for the individual goals for a strength and conditioning program. Understand the different components of workout designs with the manipulation of the acute program variables for the development of workouts in the weight room as well as for speed, power and agility. (Addressed by content in the Course Schedule – Weeks 6 and 7)
3. Identify the interactions of different workout programs for aerobic and anaerobic training and learn to minimize incompatibility of programs in a strength and conditioning programs. (Addressed by content in the Course Schedule – Week 8)
4. Identify the different periodization models and be able to develop optimal periodization schedules for the strength and conditioning programs to meet specific target goals for each training phase. (Addressed by content in the Course Schedule – Weeks 9 and 10)
5. Know the relationship of specific program in strength and conditioning to the basic associated physiological adaptations. (Addressed by content in the Course Schedule – Week 11)
6. Understand the basic issues with ergogenic aids and understand what nutritional supplements are evidenced based as well as allowed for use in various types of fitness and athletic populations. (Addressed by content in the Course Schedule – Week 12)
7. Identify the basics for the psychology of coaching, issues that need professional attention along with and proper methods of motivation and interactions with fitness and athletic populations. (Addressed by content in the Course Schedule – Week 13)
8. Understand the basic principles of athletic rehabilitation and reconditioning and the role of strength and conditioning specialists with the sports medicine health care professionals (Addressed by content in the Course Schedule – Week 14)
9. Identify the professional organizations, certifications, practice and guidelines and ethical roles played by the strength and conditioning specialists. (Addressed by content in the Course Schedule – Week15)
10. Students will evaluate and create abstracts of peer-reviewed literature that will provide insights regarding the quality and applicability of the research (Addressed by content in Course Schedule Weeks 9-14)
11. Graduate students will create a research presentation on a topic related to strength and conditioning research. This project will focus on demonstrating how foundational research has been transforms to the strength and conditioning principles taught in the course (Addressed by content in the Course Schedule Weeks 14-15)

How this course works

Mode of delivery: This is a conventional, in-person course, and all lectures will be conducted in the classroom at the designated time. All lecture material will be available on the Carmen website.

Credit hours and work expectations: This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Course Expectations

- **All Students are expected to:**
 - review the course syllabus and ask for any clarification needed
 - read all assigned material and review all information required for each course module
 - complete the quizzes and literature reviews by the corresponding deadlines
 - notify the instructor immediately if extenuating circumstances interfere with participation in the course
 - have an active OSU e-mail account and check the account daily for course related email
- **Students can expect the instructor to**
 - develop and provide instructional material to facilitate student learning
 - provide clear guidance on the course expectations and requirements
 - provide criteria for evaluation of the learning activities and course assignments
 - Post weekly announcements in Canvas summarizing upcoming due dates and deadlines, to assist with pacing course progress
 - respond to email within two business days, excluding weekends
 - be available to students during scheduled appointments (use OSU email to schedule appointments)
 - post quiz grades within one week of the due date

Course Materials

Required Textbooks

National Strength and Conditioning Association's *Essentials of Strength Training and Conditioning*, 4th Ed. Haff, G.G. and Triplett, N.T. (Editors) Human Kinetics Publishers, Champaign, IL, 2016

Ratamess, N.A. *ACSM's Foundations of Strength Training and Conditioning* 2nd Edition, Wolters Kluwer. Lippincott, Williams & Wilkins, Philadelphia, PA, 2021.

Other written material may be provided to supplement lecture material **Required**

Equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Required software

- [Microsoft Office 365](#): All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Full instructions for downloading and installation can be found [at go.osu.edu/office365help](http://go.osu.edu/office365help).

Carmen access

- You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:
 - Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
 - Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
 - Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.
 - If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Course Requirements/Evaluation

Grades

Undergraduate Students

Assignment / Category	Points (%)
Quiz #1 (Week 3)	10 (5%)
Quiz #2 (Week 5)	10 (5%)
Quiz #3 (Week 6)	10 (5%)
Quiz #4 (Week 7)	10 (5%)
Quiz #5 (Week 9)	10 (5%)
Quiz #6 (Week 10)	10 (5%)
Quiz #7 (Week 12)	10 (5%)
Quiz #8 (Week 13)	10 (5%)
Quiz #9 (Week 14)	10 (5%)
Quiz #10 (Week 15)	10 (5%)
Abstract #1- Provided (Week 4)	5 (2.5%)
Abstract #2- Identified (Week 8 and 9)	5 (2.5%)
MIDTERM (Week 8)	50 (~25%)
FINAL (Week 15)	50 (~25%)
TOTAL	210 (100%)

Graduate Students: In addition to the above assignments, you are responsible for the following:

Assignment / Category	Points (% of Grade)
Literature Review #1- Provided (Week 2)	10 (3%)
Literature Review #2- Provided (Week 4)	10 (3%)
Literature Review #3- Provided (Week 6)	10 (3%)
Literature Review #4- Identified (Week 9)	10 (3%)
Literature Review #5- Identified (Week 12)	10 (3%)
Research Manuscript (Week 14)	50 (15%)
Research Presentation (Week 15)	25 (8%)
Quizzes (10 total)	100 (30%, 3% each)
Midterm and Final	100 (30%, 15% each)
TOTAL	325 Points (100%)

Late Assignments

Unless there are extenuating circumstances, approved by your instructor, all quizzes must be completed during the designated time periods.

Grading Scale

93–100: A	87–89.9: B+	77–79.9: C+	67–69.9: D+
90–92.9: A-	83–86.9: B	73–76.9: C	60–66.9: D
	80–82.9: B-	70–72.9: C-	Below 60: E

Assignment Descriptions

Quizzes will be on the material covered in the lectures and associated readings. In addition to the weekly lectures and required readings, the quizzes shown above represent the major course assignments. The Midterm and Final will be cumulative exams based on the content covered up to that point in the semester.

Students will perform reviews (Abstract) of peer-reviewed literature related to strength and conditioning. For graduate students, the first 3 reviews, the instructor will provide the article for review; for the subsequent 2 reviews, graduate students will find their own peer-reviewed literature related to their research topic. For undergraduate students, the instructor will provide the article for their first review; the student will need to find their own peer-reviewed literature to abstract for the second review. All students are encouraged to check with the instructor to assure the articles they selected are appropriate for the assignment.

By week 9, graduate students will be required to submit a topic for their research manuscript and research presentation that is related to strength and conditioning. The research manuscript will be a 5-page, double spaced document with a minimum of 5 peer-reviewed sources that have been published within the last 10 years. The research presentation will be based on this manuscript and will be presented in the last week of classes. If graduate students are having difficulty identifying a topic to research prior to Week 9, please see the instructor for assistance.

Course Policies

Academic integrity: You are required to take all quizzes on your own and to follow strict academic integrity standards for this class.

Communication

Email Etiquette:

- Please utilize Buckeyemail (per university standard)
- Please reference the course number in the subject line
- Please allow two business days for a response (note: if your email question is sent at the last minute, it may not be possible to send you a response before an assignment is due or a test is given)
- If there is no response to an email after two days, please send another email as a reminder.
- If emailing about a grade, please note grades and feedback will be posted within one week of due date listed in Carmen.
- **Writing email:**
 - Carefully read your email message for correct grammar, spelling, punctuation, and capitalization before sending.
 - Be clear and specific so that I can understand your message and to respond appropriately.

Netiquette

As a member of a community of learners, it is your responsibility to exhibit professional behavior and decorum in all modes of communication. Following the rules of etiquette and etiquette on the Internet (netiquette) helps improve the readability of your messages, keeps conversations focused, increases trust, and creates a more positive experience for all participants. Class Etiquette and Netiquette includes, but is not limited to, the following guidelines: Honor people's rights to their opinions; respect the right for people to disagree.

- Be professional; use language that is not considered foul or abusive.
- Respond to peers honestly but thoughtfully, respectfully, and constructively.
- Avoid writing in all caps – it conveys shouting and anger.
- Avoid colors like red and green for accessibility reasons; avoid font styles, colors, and sizes that are difficult to read.
- Address the ideas, not the person, when responding to messages or discussions.
- Be careful when using sarcasm or humor – without social cues like facial expressions or body language, a remark meant to be humorous could come across as offensive or hurtful.
- Don't distribute copyrighted materials, such as articles and images (most things online are not licensed as "fair use"). Share links to those materials instead and be sure to properly cite all sources to avoid unintentional plagiarism.

Class Attendance and Excused Absences

Per university guidelines students are expected to attend classes regularly and this is especially important for this class where exercise techniques and testing methods will be the focus. University guidelines stipulate that each instructor sets their policy any missed classes. In this course any missed in person classes with a valid excuse need to be made up before taking the quiz for that lecture series.

Again, per university policies *"However, if a student anticipates an absence, they should talk to their instructors. Legitimate reasons for an excused absence include, but are not limited to, illness and injury, disability-related concerns, military service, death in the immediate family, religious observance, academic field trips, participation in an approved concert or athletic event, and direct participation in university disciplinary hearings. When a student returns to class after a legitimate absence, their instructor will provide them with appropriate assistance and counsel about completing missed assignments and class material. However, they are not required to waive essential or fundamental academic requirements to accommodate a student's absence. A student is responsible for fulfilling all course requirements in a timely manner, including completing any makeup work resulting from their absence."*

Technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TTY:** 614-688-8743

Student Resources

Technology:

[EHE Tech Help](#)

[OSU Tech Support](#)

Academics:

[EHE Homepage](#)

[OSU Advising](#)

[Dennis Learning Center](#)

[EHE Advising](#)

[OSU Library](#)

[EHE Office of Research](#)

Student Life:
[OSU Student Health Services](#)
[OSU Student Life](#)
[OSU Student Financial Aid](#)
[OSU Career Counseling and Support Services](#)
[EHE Office of Diversity, Inclusion, and Community Engagement](#)
[EHE Undergraduate Student Services](#)
[OSU Student Advocacy Center](#)
[EHE Career Services](#)
[OSU Office of Diversity and Inclusion](#)

Course Schedule

Week	Dates	Topics	Learning Objectives	Readings & Activities	Assignments/Assessments
1	8/22 – 8/25	Class Introduction Overview Lecture 1 -Introduction History of Strength and Conditioning/Basic Principles	1	NSCA Ch1 ACSM CH1, CH10 Graduates: research article 1	Quiz #1 – History /Basics
2	8/28-9/1	NEEDS ANALYSIS Evidence Based Practice Conditioning elements Lectures 1, 2 and 3	2, 10	NSCA Ch2 ACSM CH12	Quiz # 2 - Needs Analysis Graduates: Literature review 1
3	9/4-9/8	Acute Program Variables Choice and Order Lecture 1, 2, 3	2	Any Readings Assigned ACSM CH12 NSCA CH17 Graduates: research article 2	Quiz #3 – Choice and Order
4	9/11-9/15	Acute Program Variables Intensity and Sets Lecture 1, 2, 3	2, 10	Any Readings Assigned ACSM CH12 NSCA CH17	Quiz #4 – Intensity and Sets Graduates: Literature review 2 Undergraduates: Literature review 1
5	9/18-9/22	Acute Program Variables Rest Periods	2	Any Readings Assigned ACSM CH12 NSCA CH17 Graduates: research article 3	
6	9/25-9/29	Periodization Classic Linear Models Lecture 1, 2, 3	4, 10	Any Readings Assigned ACSM CH18 NSCA CH21	Quiz # 5 Rest Periods & Linear Periodization Graduates: Literature review 3

7	10/2-10/6	Periodization Non-Linear Models Lectures 1, 2, 3	4	Any Readings Assigned ACSM CH18 NSCA CH21	
8	10/9	Anaerobic Training Lectures 1, 2, 3 FALL BREAK 10/12-10/13	3	Any Readings Assigned ACSM CH16 NSCA CH5	Quiz #6 – Non-Linear Undergraduates: Submit article to be reviewed Periodization & Anaerobic Training
9	10/16-10/20	Overtraining/Compatibility Lectures 1,2,3	3, 10, 11	Assigned Readings ACSM CH17 NSCA CH5,6	Quiz #7 – Overtraining/ Compatibility Graduates: Literature Review 4 and Topic for research project due Undergraduate s: literature review 2
10	10/23-10/27	Concepts in Exercise Techniques Plyometrics, Speed, and Teaching Lectures 1, 2, 3	3	Any Readings Assigned ACSM CH15,16 NSCA CH18,19	
11	10/30-11/3	Adaptations to Strength Training – Lectures 1,2,3	5	Any Readings Assigned ACSM Chapter parts covered in Lecture Part 2 NSCA Parts in Different chapters covered in lecture	Quiz #8 – Concepts and Adaptations
12	11/6-11/10	Ergogenics and Nutritional Supplements Lectures 1,2,3	6, 10	Any Readings Assigned ACSM CH3 NSCA CH9,10,11	Quiz # 9 Ergogenics/ Nutrition Graduates: Literature Review 5 Due
13	11/13-11/17	Women, Older Adults and Children Lectures 1,2,3	7	Any Readings Assigned NSCA CH7	Quiz #9 – Women/Older Children

14	11/20-	Rehabilitation and Reconditioning Psychology Lectures 1, 2, 3 THANKS GIVING BREAK 11/22-11/24	8, 10	Any Readings Assigned NSCA CH8,22	Quiz #10 – Rehab and Reconditioning Graduates: Research Manuscript Due
15	11/27-12/1	Graduate Research Presentations Professionalism, Career and Organizations – Lectures 1 and 2	9, 10, 11		Graduates: Research Presentation Due
16	12/4-12/6	Graduate Research Presentations Professionalism, Career and Organizations – Lectures 1 and 2	9, 10, 11		

The schedule above is subject to change based on course and participant needs. Any changes in schedule will be posted in Carmen (or in class).

Institutional Policies

Academic Integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me. Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Accessibility Accommodations

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology: This course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor. [Carmen \(Canvas\) accessibility documentation](#).

Grievances

According to University Policies, available from the Division of Student Affairs, if you have a problem with this class, "You should seek to resolve a grievance concerning a grade or academic practice by **speaking first with the instructor or professor**. Then, if necessary, with the department chairperson, college dean, and provost, in that order. Specific procedures are outlines in Faculty Rule 3335-7-23, which is available from the Office of Student Life, 208 Ohio Union."

Copyright Disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

- **Course Audio and Video Recording:** Video or audio recording of classes without the explicit written permission of the instructor/professor is a violation of the Code of Student Conduct or Students who wish to record their classes must first obtain written permission of the instructor/professor. Otherwise, such recording constitutes a violation of the Code of Student Conduct.
- **Student Generated materials:** Any materials generated by a student(s) is copyrighted. Permission must be obtained to use these materials other than the intended purpose inside the course.
- **Course materials:** These materials are copyrighted and are owned by the author. Copyrights have been secured or they are considered fair use inside/for the course but this does not apply to uses outside of the course.

Mental Health Statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. **You can reach an on-call counselor when CCS is closed at 614-292-5766 and 24-hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.**

Diversity Statement

The College of Education and Human Ecology affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited,

The College of Education and Human Ecology is committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the College seeks to develop and nurture diversity, believing that it strengthens the organization, stimulates creativity, promotes the exchange of ideas, and enriches of the University's community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, gender identity, sexual orientation, ability status, health status, health status, or veteran status.

Statement on Title IX: Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu.

The Office of Diversity and Inclusion provides holistic support for qualifying student parents enrolled at Ohio State. To learn more, contact the "Child Care Access Means Parents in School" (CCAMPIS) Program at 614-247-7092/ lewis.40@osu.edu or visit odi.osu.edu/ccampis



KNHES 3416 - Theory of Strength and Conditioning

Autumn 2021, 3 Credit Hours, UG

Instructor: William J. Kraemer, PhD, CSCS*D, FACSM, FNSCA, FISSN, FACN

Email address: kraemer.44@osu.edu

Office hours: Monday 8-10 AM and Thursday 8-10 AM

Course Times and Location: Asynchronous, this course is 100% online. There are no required sessions when you must be logged into Carmen at a scheduled time.

Course Overview

Description / Rationale

This online lecture course will examine the fundamental principles and theories that are the basis of strength and conditioning that allow for workout and training program design. The course is designed to give students the scientific and practical basis for developing, designing, evaluating, and implementing resistance training programs. Including:

- Resistance training concepts from developing a “needs analysis”, understanding the impact of the various acute program variables in workout design and the how periodization strategies can be used for chronic training progressions.
- Understanding different conditioning programs from aerobic endurance, flexibility, agility, balance, etc. along with how to deal with integration of different conditioning programs and their compatibility for adaptation will also be addressed (e.g., strength/power vs aerobic endurance).
- Basic physiological principles (e.g., Size Principle), theories (e.g., Sliding Filament Theory), and concepts (e.g., overtraining) needed for understanding exercise prescriptions and training program progressions for men and women across the life span including athletes will be examined.
- This course will also serve as a valuable preparation tool for those students interested in taking the National Strength and Conditioning Association’s (NSCA) certification exams. Ultimately, this course is designed to give students the scientific and practical basis for developing, designing and implementing resistance training programs having a broad range of needs and contexts for practice.

Relation to Other Courses

This course expands on the content in KNHES 3415 for exercise prescription and conditioning concepts.

Prerequisites: KNHES 3414

Prerequisite Knowledge: Basic understanding of human anatomy and physiology.

Learning Objectives

The content of specific lectures will be addressing the various individuals served by the development and implementation of a strength and conditioning program.

Thus, by the end of this course, students should successfully be able to:

1. Understand the basic physiological and biomechanical principles involved with strength and conditioning programs and implementation. (Addressed by content in the Course Schedule - Weeks 1-5)
2. Develop a “needs analysis” for the individual goals for a strength and conditioning program. Understand the different components of workout designs with the manipulation of the acute program variables for the development of workouts in the weight room as well as for speed, power and agility. (Addressed by content in the Course Schedule – Weeks 6 and 7)
3. Identify the interactions of different workout programs for aerobic and anaerobic training and learn to minimize incompatibility of programs in a strength and conditioning programs. (Addressed by content in the Course Schedule – Week 8)
4. Identify the different periodization models and be able to develop optimal periodization schedules for the strength and conditioning programs to meet specific target goals for each training phase. (Addressed by content in the Course Schedule – Weeks 9 and 10)
5. Know the relationship of specific program in strength and conditioning to the basic associated physiological adaptations. (Addressed by content in the Course Schedule – Week 11)
6. Understand the basic issues with ergogenic aids and understand what nutritional supplements are evidenced based as well as allowed for use in various types of fitness and athletic populations. (Addressed by content in the Course Schedule – Week 12)
7. Identify the basics for the psychology of coaching, issues that need professional attention along with and proper methods of motivation and interactions with fitness and athletic populations. (Addressed by content in the Course Schedule – Week 13)
8. Understand the basic principles of athletic rehabilitation and reconditioning and the role of strength and conditioning specialists with the sports medicine health care professionals (Addressed by content in the Course Schedule – Week 14)
9. Identify the professional organizations, certifications, practice and guidelines and ethical roles played by the strength and conditioning specialists. (Addressed by content in the Course Schedule – Week15)

How this course works

Mode of delivery: This course is 100% online. There are no required sessions when you must be logged into Carmen at a scheduled time.

Pace of online activities: This course is divided into **weekly modules** that are generally released at least 24 hours in advance of that corresponding week. Students are expected to keep pace with weekly lecture material but may schedule their efforts freely within that time frame.

Credit hours and work expectations: This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Course Expectations

- Some of you have taken online courses previously, while for others this maybe your first experience in an online course.
- Expectations for performance in an online course are the same as for a traditional course. In fact, online courses require an important degree of self-motivation, self-discipline, and technological skill that can make them more demanding for some students. Students and the instructor share mutual responsibility for a successful learning experience!
- **Students are expected to**
 - review the course syllabus and ask for any clarification needed
 - read all assigned material and review all information required for each course module
 - complete the quizzes by the corresponding deadlines
 - notify the instructor immediately if extenuating circumstances interfere with participation in the course
 - have an active OSU e-mail account and check the account daily for course related email
- **Students can expect the instructor to**
 - develop and provide instructional material to facilitate student learning
 - provide clear guidance on the course expectations and requirements
 - provide criteria for evaluation of the learning activities and course assignments
 - post weekly announcements in Canvas summarizing upcoming due dates and deadlines, to assist with pacing course progress
 - respond to email within two business days, excluding weekends
 - be available to students during scheduled appointments (use OSU email to schedule appointments)
 - post quiz grades within one week of the due date

Course Materials

Required Textbooks

Ratamess, N.A. *ACSM's Foundations of Strength Training and Conditioning* 2nd Edition, Wolters Kluwer. Lippincott, Williams & Wilkins, Philadelphia, PA, 2021.

National Strength and Conditioning Association's *Essentials of Strength Training and Conditioning*, 4th Ed. Haff, G.G. and Triplett, N.T. (Editors) Human Kinetics Publishers, Champaign, IL, 2016

Other written material may be provided to supplement lecture material.

Required equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Required software

- [Microsoft Office 365](#): All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Full instructions for downloading and installation can be found [at go.osu.edu/office365help](http://go.osu.edu/office365help).

Carmen access

- You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:
 - Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
 - Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
 - Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.
 - If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Course Requirements/Evaluation

Grades

Assignment / Category	Points / %
Quiz #1 (Week 3) –	10
Quiz #2 (Week 5) –	10
Quiz #3 (Week 6) –	10
Quiz #4 (Week 7) –	10
Quiz #5 (Week 9) –	10
Quiz #6 (Week 10) –	10
Quiz #7 (Week 12) –	10
Quiz #8 (Week 13) –	10
Quiz #9 (Week 14) –	10
Quiz #10 (Week 15) -	10
TOTAL	Points/100%

See below for assignment descriptions and due dates.

Late Assignments

Unless there are extenuating circumstances, approved by your instructor, all quizzes must be completed during the designated time periods.

Grading Scale

93–100: A	87–89.9: B+	77–79.9: C+	67 –69.9: D+
90–92.9: A-	83–86.9: B	73–76.9: C	60 –66.9: D
	80–82.9: B-	70 –72.9: C-	Below 60: E

Assignment Descriptions

Quizzes will be on the material covered in the lectures and associated readings. In addition to the weekly lectures and required readings, the quizzes shown above represent the major course assignments. Given that your lowest quiz grade will be discarded before your final grade is determined, there will be no extra credit opportunities.

Course Policies

Academic integrity: You are required to take all quizzes on your own and to follow strict academic integrity standards for this class.

Communication

Email Etiquette:

- Please utilize Buckeyemail (per university standards)
- Please reference the course number in the subject line
- Please allow two business days for a response (note: if your email question is sent at the last minute it may not be possible to send you a response before an assignment is due or a test is given)
- If there is no response to an email after two days, please send another email as a reminder.
- If emailing about a grade, please note grades and feedback will be posted within one week of due date listed in Carmen

Writing email:

- Carefully read your email message for correct grammar, spelling, punctuation, and capitalization before sending.
- Be clear and specific so that I am able to understand your message and to respond appropriately.

Netiquette

As a member of a community of learners, it is your responsibility to exhibit professional behavior and decorum in all modes of communication. Following the rules of etiquette on the Internet (netiquette) helps improve the readability of your messages, keeps conversations focused, increases trust, and creates a more positive experience for all participants. Netiquette includes, but is not limited to, the following guidelines:

- Honor people's rights to their opinions; respect the right for people to disagree.
- Be professional; use language that is not considered foul or abusive.
- Respond to peers honestly but thoughtfully, respectfully, and constructively.
- Avoid writing in all caps – it conveys shouting and anger.
- Avoid colors like red and green for accessibility reasons; avoid font styles, colors, and sizes that are difficult to read.
- Address the ideas, not the person, when responding to messages or discussions.
- Be careful when using sarcasm or humor – without social cues like facial expressions or body language, a remark meant to be humorous could come across as offensive or hurtful.
- Don't distribute copyrighted materials, such as articles and images (most things online are not licensed as "fair use"). Share links to those materials instead and be sure to properly cite all sources to avoid unintentional plagiarism.

Technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TTY:** 614-688-8743

Student Resources

Technology:

[EHE Tech Help](#)

[OSU Tech Support](#)

Academics:

[EHE Homepage](#)

[OSU Advising](#)

[Dennis Learning Center](#)

[OSU Office of Research](#)

[EHE Advising](#)

[OSU Library](#)

[EHE Office of Research](#)

Student Life:

[OSU Student Health Services](#)

[OSU Student Life](#)

[OSU Student Financial Aid](#)

[OSU Career Counseling and Support Services](#)

[EHE Office of Diversity, Inclusion, and Community](#)

[Engagement](#)

[EHE Undergraduate Student Services](#)

[OSU Student Advocacy Center](#)

[EHE Career Services](#)

[OSU Office of Diversity and Inclusion](#)

Course Schedule

Week	Dates	Topics	Learning Objectives	Readings & Activities	Assignments/Assessments
1	Aug 24 – Aug27	Class Introduction Overview Lecture 1 -Introduction to Strength and Conditioning	1	Read Chapters 1 and 10- ACSM	
2	8/30-9/3	Part 1- Physiological Basis of Strength and Conditioning – Lectures 2, 3 and 4	1	Read Chapters 1, 3,4 NSCA	
3	9/6-9/10	Lecture 1 Part 2-Biomechanical/Neuromuscular Basis of Strength and Conditioning	1	Chapters 2 ACSM Chapter 2 NSCA	Quiz #1 – Introduction and Part 1
4	9/13-9/17	Part 2 – Lectures 2, 3 and 4	1	Chapters 4 and 5 ACSM	

Week	Dates	Topics	Learning Objectives	Readings & Activities	Assignments/Assessments
5	9/20-9/24	Part 3 Metabolic/Bioenergetic Basis of Strength and Conditioning – Lectures 1 and 2	1	Read Chapter 8, 9 ACSM Chapters 3 NSCA	Quiz #2 – Part 2
6	9/27-10/1	Part 1 Program Design – Warm Up, Flexibility, Cool Down Acute Program Design Variables Lectures 1 and 2	2	Read Chapter 11, 12 ACSM Chapter 14, 17 NSCA	Quiz #3 – Part 3
7	10/4-10/8	Part 2 Program Design – Plyometrics, Speed and Agility Lectures 3 and 4	2	Read Chapter 16 ACSM Chapters 18,19 NSCA	Quiz #4 – Part 1
8	10/11-10/15	Aerobic Training and Program Compatibility – Lectures 1 and 2	3	Read Chapter 17 ACSM Chapters 6,20 NSCA	Quiz # 5 Part 2
9	10/18-10/22	Periodization of Training – Lectures 1 and 2	4	Read Chapter 18 ACSM Chapter 21 NSCA	Quiz #5 – Aerobic Training and Compatibility
10	10/25-10/29	Periodization – Lecture 3 and 4	4	Read Chapter 6 Read Chapter 18 ACSM Chapter 21 NSCA	
11	11/1-11/5	Adaptations to Strength Training – Lecture 1 and 2	5	Read Chapter 5 ACSM Chapters 5, 6 NSCA	Quiz #6 – Periodization of Training
12	11/8-11/12	Ergogenics and Nutritional Supplements – Lecture 1 and 2	6	Read Chapter 3 ACSM Chapter 9, 11 NSCA	Quiz #7 – Adaptations to Strength Training
13	11/15-11/19	Psychological Aspects of Strength Coaching and Athletic Performance	7	Read Chapter 8 NSCA	Quiz # 8 Ergogenics and

Week	Dates	Topics	Learning Objectives	Readings & Activities	Assignments/Assessments
		Lectures 1 and 2			Nutritional Supplements
14	11/22-11-26	Rehabilitation and Reconditioning – Lectures 1 and 2	8	Read Chapter 22 NSCA	Quiz #9 – Psychological Aspects of Strength Coaching and Athletic Performance
15	11/29-12/3	Professionalism, Career and Organizations – Lectures 1 and 2	9		Quiz #10 – Rehabilitation and Reconditioning

The schedule above is subject to change based on course and participant needs. Any changes in schedule will be posted in Carmen (or in class).

Institutional Policies

Academic Integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me. Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Accessibility Accommodations

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology: This course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor. [Carmen \(Canvas\) accessibility documentation](#).

Grievances

According to University Policies, available from the Division of Student Affairs, if you have a problem with this class, "You should seek to resolve a grievance concerning a grade or academic practice by ***speaking first with the instructor or professor***. Then, if necessary, with the department chairperson, college dean, and provost, in that order. Specific procedures are outlines in Faculty Rule 3335-7-23, which is available from the Office of Student Life, 208 Ohio Union."

Copyright Disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

- **Course Audio and Video Recording:** Video or audio recording of classes without the explicit written permission of the instructor/professor is a violation of the Code of Student Conduct or Students who wish to record their classes must first obtain written permission of the instructor/professor. Otherwise, such recording constitutes a violation of the Code of Student Conduct.
- **Student Generated materials:** Any materials generated by a student(s) is copyrighted. Permission must be obtained to use these materials other than the intended purpose inside the course.
- **Course materials:** These materials are copyrighted and are owned by the author. Copyrights have been secured or they are considered fair use inside/for the course but this does not apply to uses outside of the course.

Mental Health Statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. **You can reach an on-call counselor when CCS is closed at 614-292-5766 and 24-hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.**

Diversity Statement

The College of Education and Human Ecology affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited,

The College of Education and Human Ecology is committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the College seeks to develop and nurture diversity, believing that it strengthens the organization, stimulates creativity, promotes the exchange of ideas, and enriches of the University's community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, gender identity, sexual orientation, ability status, health status, health status, or veteran status.

Statement on Title IX: Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu.

The Office of Diversity and Inclusion provides holistic support for qualifying student parents enrolled at Ohio State. To learn more, contact the "Child Care Access Means Parents in School" (CCAMPIS) Program at 614-247-7092/ lewis.40@osu or visit odi.osu.edu/ccampis

Exercise Science Education Bachelor of Science in Education



THE OHIO STATE UNIVERSITY
COLLEGE OF
EDUCATION AND HUMAN ECOLOGY



Effective for students admitted to the College of Education and Human Ecology beginning **Autumn 2022**

General Education Requirements (32-39 Hours)		HOURS
Launch Seminar		1
Reflection Seminar		1
Foundations (22-25 Hours)		
Writing & Information Literacy		3
Mathematical & Quantitative Reasoning or Data Analysis		3-5
Literary, Visual & Performing Arts		3
Historical & Cultural Studies		3
Natural Science		4-5
Social & Behavioral Sciences		3
Race, Ethnic & Gender Diversity		3
Thematic Pathways (8-12 Hours)		
Take 4-6 hours from Citizenship for a Diverse & Just World and 4-6 hours from another Thematic Pathway of choice.		
Citizenship for a Diverse & Just World		4-6
Choice of 4-6 hours from one additional Thematic Pathway:		4-6
Lived Environments	Origins & Evolution	Migration, Mobility, & Immobility
Sustainability	Traditions, Cultures, & Transformations	
Health & Wellbeing	Number, Nature, Mind	
EHE 1100 College Survey		1

Supporting Courses (14-18 Hours)	HOURS
Math Placement M or L, or MATH 1148 College Algebra or higher	0-4
BIOLOGY 1113 Biological Science: Energy Transfer & Development (can overlap with GE Natural Science)	4
CHEM 1210 General Chemistry I	5
CHEM 1220 General Chemistry II	5
Major Requirements (50-57 Hours)	HOURS
Major Admissions Criteria: 2.75 cumulative GPA C- grade or higher in BIOLOGY 1113, CHEM 1210, CHEM 1220	
Major Core	47
ANATOMY 2300.04 Human Anatomy	4
BIOCHEM 2210 Elements of Biochemistry	4
KNHES 2995 Food & Fitness: Fuel for Good Health	4
KNHES 2360 Introduction to Exercise Science	3
KNHES 3414 Physiological Systems in Human Performance	3
KNHES 3415 Applied Physiology in Human Performance	3
KNHES 3416 Theory of Strength & Conditioning	3
KNHES 5590 Comprehensive Laboratory in Exercise Science	3
KNHES 5685 Adult Exercise Programming-Implementation	4
KNHES 4525 Promoting Behavior Change in Sport, Leisure, & Exercise, or KNHES 5652 Worksite Health Promotion	3
KNHES 5191 Internship: Health & Exercise Science	3
PHYSIO 3200 Human Physiology	5
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves	5
Major Electives/Professional Experience Choose 3-10 hours from below (course hours in parenthesis)	3-10
KNHES 5191 Internship: Health & Exercise Science (1-9) KNHES 4998 Research in Kinesiology: Health & Exercise Science (1-12) KNHES 3417 Exercise Techniques & Testing Technology in Strength & Conditioning (3) KNHES 4805 Challenging the Conventional Role of Diet & Exercise in Obesity Management (3) KNHES 5704 Health Program Evaluation (3) HUMNNTR 2410 Science of Nutrition (4) or HUMNNTR 2210 (transfer equivalent only) (3) PSYCH 3340 Developmental Psychology (3) HDFS 2400 Life Span Human Development (3) KNPE 2542 Lifespan Motor Development (3) HTHRHSC 2500 Medical Terminology for the Health Professions (3)	
Total Hours: 93-115 Free Electives to reach 120 Hours: 5-27 Minimum of 120 credit hours required for degree completion. Total Hours range is based on requirement course choices and/or the number of credits that overlap between requirement areas. Students are encouraged to overlap as many credits as possible.	

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THE OHIO STATE UNIVERSITY
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Foundations (22-25 Hours)		
Writing & Information Literacy		3
Mathematical & Quantitative Reasoning or Data Analysis		3-5
Literary, Visual & Performing Arts		3
Historical & Cultural Studies		3
Natural Science		4-5
Social & Behavioral Sciences		3
Race, Ethnic & Gender Diversity		3
Thematic Pathways (8-12 Hours)		
Take 4-6 hours from Citizenship for a Diverse & Just World and 4-6 hours from another Thematic Pathway of choice.		
Citizenship for a Diverse & Just World		4-6
Choice of 4-6 hours from one additional Thematic Pathway:		4-6
Lived Environments	Origins & Evolution	Migration, Mobility, & Immobility
Sustainability	Traditions, Cultures, & Transformations	
Health & Wellbeing	Number, Nature, Mind	
EHE 1100 College Survey		1

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BIOCHEM 2210 Elements of Biochemistry	4
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KNHES 2360 Introduction to Exercise Science	3
KNHES 3414 Physiological Systems in Human Performance	3
KNHES 3415 Applied Physiology in Human Performance	3
KNHES 5416 Theory of Strength & Conditioning	3
KNHES 5590 Comprehensive Laboratory in Exercise Science	3
KNHES 5685 Adult Exercise Programming-Implementation	4
KNHES 4525 Promoting Behavior Change in Sport, Leisure, & Exercise, or KNHES 5652 Worksite Health Promotion	3
KNHES 5191 Internship: Health & Exercise Science	3
PHYSIO 3200 Human Physiology	5
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