

KINE 150 - Physiology of the Marathon (Spring 2022)

"Struggling and suffering are the essence of a life worth living. If you're not pushing yourself beyond the comfort zone, if you're not demanding more from yourself - expanding and learning as you go - you're choosing a numb existence. You're denying yourself an extraordinary trip." —

Dean Karnazes

- **Instructor:** M. Brennan Harris, Ph.D. (mbharr@wm.edu)
- **Office Hours/Location:** TuTh 11-noon or by appointment / Adair 110
- **Class Time/Location:** TuTh 2-3:20pm / Boswell 37

Course Description

This course will introduce students to the basic principles of exercise physiology and human performance, and exercise prescription. Students will have the opportunity to evaluate marathon training programs, participate in class runs, and evaluate their own physiologic characteristic related to human performance including VO₂max, lactate threshold, body composition, etc. as a form of experiential learning. In addition, the course will cover common running injuries as well as psychological limitations to performance. Current research papers in exercise physiology and human performance will be reviewed and critiqued both orally and in writing.

COLL 150

In addition, the format of this course contains fundamental components as a first-year seminar helping students develop scholarly methods including information literacy, communication, collaboration and revision. In order to satisfy these components and requirements, the course will cover the above the material through intensive class discussion, reading and writing. Various informal and formal assignments with instructor and peer review will be used to help students develop and improve their skills in these areas.

Course Objectives

Upon successful completion of this course, the student will be able to:

1. Demonstrate an understanding of basic principles of physiologic function and human performance and the terminology/vocabulary used in these fields of study
2. Demonstrate an understanding of the marathon as a human endeavor
3. Describe current performance enhancement techniques
4. Review and critique scientific research papers both orally and in writing
5. Write a formal review of scientific research
6. Understand the writing process and evaluate their own strengths and weaknesses as a writer
7. Develop and effectively deliver an oral or video presentation
8. Appreciate the physical and mental challenges unique to marathon running

Course Evaluation

The student's final grade will be determined as follows:

- Participation/informal writing (gait analysis, race volunteer/attend) =5%
- Quizzes =10%
- Two, 5 page papers and 1 oral presentation =60% (20% each)
- One 10-12 page formal paper = 25%
- TOTAL =100%

The following grading scale will be used:

- >92.49 = A >72.49 = C
- >89.49 = A- >69.49 = C-
- >87.49 = B+ >67.49 = D+
- >82.49 = B >62.49 = D
- >79.49 = B- >59.49 = D-
- >77.49 = C+ <59.49 = F

Required Texts

Ultramarathon Man: Confessions of an All-Night Runner by Dean Karnazes (304 pages, ISBN-10: 9781585424801)

Once a runner: A Novel by John L. Parker (304 pages, ISBN-10: 1416597891)

Born to Run: A Hidden Tribe, Superathletes, and the Greatest Race the World Has Never Seen by Christopher McDougal (304 pages, ISBN-10: 9780307279187)

*Additional readings and information will come from on-line sources as well as articles and papers handed out in class or posted on-line on Blackboard.

Additional Requirements

Since various readings and in-class exercises will be done on-line, you will need a laptop with internet access. In addition, in order to enhance your understanding and appreciation of the physiological responses to exercise you will be expected to participate in various exercise tests and group runs. Dates for exercise testing and group runs will be announced ahead of time to ensure that you bring the proper attire and/or equipment to class.

Course Policies

“This semester, the world will enter its third year with COVID. As we experience a fifth surge of pandemic with the highly transmissible omicron variant, it is reasonable to expect significant levels of infection at W&M. As an academic community based on faculty and students

convening, spring 2022 courses will largely consist of in-person instruction. All of us will follow W&M requirements - vaccinations and boosters, indoor masking, as well as quarantine and isolation when ill. That last is really important: for those who have tested positive, W&M's requirements must be fulfilled before class can be attended in person, and, out of an abundance of caution, anyone with symptoms consistent with COVID- even if they don't have a positive test- should not come to class.

Please note that testing positive for COVID or any other temporary illness is not considered a disability as defined by ADA guidelines and is not under the purview of W&M's Student Accessibility Services (SAS). Thus, any questions should be addressed via email to the instructor" (from the Dean of A&S)

Due to the discussion intensive seminar format of the course, attendance is mandatory. If you cannot attend in-person, let the instructor know ahead of class via email and you can attend class via Zoom or, if necessary, complete an alternative assignment. You will be allowed two unexcused absences, generally defined as not emailing the instructor before class regarding absence. Each unexcused absence beyond those two will result in a lowering of your overall grade by 1/3 (for example, B to B-). Excused absences include those arranged with the instructor beforehand and those accompanied by appropriate documentation/communication from the Dean of Students office.

If the instructor has to miss class, they will inform the students prior to class via email and class will either be conducted remotely via Zoom or, if necessary, via a recorded lecture or alternative assignment posted on Blackboard.

Late papers and assignments will be marked down 1/3 of a grade for each day late.

Class Climate

This course is a first-year seminar, designed to give you a chance to explore an academic area of interest through intensive reading, writing, and discussion. Most class periods will be filled by discussion of the assigned readings and activities with frequent opportunities to write. All students need to feel comfortable participating, so we will create and maintain an atmosphere of mutual respect in which everyone's ideas can be heard.

In addition, the topic of the course has been chosen to be fun and inspirational while introducing students to the scientific and academic discipline of Kinesiology. Be open to the many possible ways in which to explore the study of human movement and the mind body connection!

Accommodations

It is the policy of William & Mary to accommodate students with disabilities and qualifying diagnosed conditions in accordance with federal and state laws. Any student who feels s/he may need an accommodation based on the impact of a learning, psychiatric, physical or chronic health diagnosis should be referred to Student Accessibility Services staff at 757-221-2512 or

at sas@wm.edu. SAS staff will work with you to determine if accommodations are warranted, and if so, to help you obtain an official letter of accommodation

Diversity

The Department of Kinesiology places a high value on inclusiveness in order to create an optimal environment in which our students learn, and our faculty and staff carry out their professional responsibilities. For more information please refer to the department [diversity plan](#).

Mental Health

Mental health can pose significant challenges to student success at W&M, both in and outside of the classroom environment. The Kinesiology Department wants students to flourish during their time at W&M. If you are struggling with concerns, including, but not limited to, relationships, anxiety, alcohol or drug use, feeling down, trouble concentrating and/or lack of motivation, we hope you will reach out to campus resources, such as the Counseling Center, which is available for walk-ins during business hours and by phone after hours (757-221-3620). You can learn more about their services via this link <https://www.wm.edu/offices/wellness/counselingcenter/>

Land Acknowledgement

William & Mary acknowledges the Indigenous peoples who are the original inhabitants of the lands our campus is on today – the Cheroenhaka (Nottoway), Chickahominy, Eastern Chickahominy, Mattaponi, Monacan, Nansemond, Nottoway, Pamunkey, Patawomeck, Upper Mattaponi, and Rappahannock tribes – and pay our respect to their tribal members past and present.

DAY	DATE	TOPIC	READINGS/DUE DATES	READING
Week 1				
Th	27-Jan	Introductions/Informal Writing	Watch NOVA: Marathon on-line	UMM 1-6
Week 2				
Tu	1-Feb	Class Run	Reading 1 - Physiological determinants of endurance exercise performance	
Th	3-Feb	Discussion: NOVA Marathon (movie) & Physiological Determinants of Endurance Exercise Performance	Quiz 1 - UMM	UMM 7-12
Week 3				
Tu	8-Feb	Informal Writing: Getting Started Discussion: Physiological Determinants of Endurance Performance (continued) Paper 1	HW: HW: Comparison of physiological determinants and training adaptations AND Begin Paper 1	
Th	10-Feb	Writing Critique - examples and reviewing scientific papers	Quiz 2 - UMM	UMM 13-18
Week 4				
Tu	15-Feb	APA Style Citations and References AND Follow-up on Physiology	Reading 2 - Nutrition for optimal performance	
Th	17-Feb	Learning Resource Center - Swem Library: Finding and evaluating sources	Quiz 3 - UMM; Paper 1 Rough Draft DUE	BTR 1-8
Week 5				
Tu	1-Mar	Visit the Exercise Physiology Labs (Possible Testing); Discussion of UMM	Paper 1 Rough Draft Reviews DUE	
Th	3-Mar	Nutrition Basics	Reading 2 - ACSM Nutrition for Optimal Performance	
Week 6				
Tu	8-Mar	Nutrition: Recommendations, Nutritional Supplements & Ergogenic Aids; Assign Presentations	Paper 1 Final Draft DUE; Reading 3 - Hydration	
Th	10-Mar	What makes a good presentation? Components of a Training Plan	Quiz 1 - BTR	BTR 9-16
Week 7				
Tu	15-Mar	Spring Break		
Th	17-Mar	Spring Break		
Week 8				
Tu	22-Mar	Present/Evaluate Training Plans		
Th	24-Mar	Class Run	Quiz 2 - BTR	BTR 17-24
Week 9				
Tu	29-Mar	Presentations		
Th	31-Mar	Presentations	Quiz 3 - BTR	BTR 25-32
Week 10				
Tu	5-Apr	Presentations; Paper 2	Begin Paper 2	
Th	7-Apr	Discussion: Review Presentations; Critique Sample Papers for Paper 2	Quiz 4 - BTR; Readings - Barefoot Running	OAR 1-9
Week 11				
Tu	12-Apr	Discussion: Born to Run; Work on Paper 2		
Th	14-Apr	Biomechanics Lab	Quiz 1 - OAR; Paper 2 Rough Draft DUE	OAR 10-18

Week 12				
Tu	19-Apr	Gait Analysis	Paper 2 Rough Draft Reviews DUE	
Th	21-Apr	Spirit of the Marathon (Movie)	Quiz 2 - OAR	OAR 19-27
Week 13				
Tu	26-Apr	Work on Paper 2 and/or Individual Appointments	Paper 2 Final Draft DUE; Reading on Central Governor Theory	
Th	28-Apr	Discuss Movie and Psychological Aspects of Marathon Running	Quiz 3 - OAR; Begin Final Paper	OAR 27-35
Week 14				
Tu	3-May	Discussion: Central Governor Theory and Fatigue		
Th	5-May	Neurophysiology vs Psychology	Quiz 4 - OAR	
Week 15				
Tu	4-May	Discuss Once A Runner and Work on Final Papers		
Th	6-May	Final Class Run		
	17-May	FINAL PAPER DUE		