

Department of Exercise Science & Physical Education Bachelor of Science in Exercise Science



Dr. Bill Sullivan

Professor

Coordinator, Undergraduate Exercise
Science Program

sullivanw@montclair.edu

What is Exercise Science?

- We study human movement and the body
- Multi-disciplinary field
 - Physiology
 - Anatomy
 - Physics
 - Pharmacology
 - Medicine
 - Chemistry
- Apply those disciplines as:
 - Exercise physiology
 - Skill acquisition and motor control
 - Biomechanics

What are the goals of Exercise Science?

- Provide students with:
 - A strong scientific background
 - Practical knowledge-base
 - Academic, experiential, & leadership courses
- Prepare students to:
 - Design, implement, evaluate, and instruct movement programs
 - Perform accurate fitness assessments
 - Recognize pathologic conditions
 - Earn professional certifications – CSCS, CEP
 - Enter graduate programs

Where do Exercise Science graduates work?

- Fitness related settings
 - Corporate fitness center
 - Commercial fitness center
 - Sports performance center
- Health related settings
 - Cardiac rehabilitation
 - Hospitals
 - Clinics
- Internship program
 - Practical experience that students organize

What jobs do Exercise Scientists do?

Acupuncturist	Pedorthist (foot orthotic)
Athletic Trainer	Perfusionist (heart/lung machine operator)
Biomechanist	Personal Trainer
Cardiac Rehabilitation Specialist	Physical Therapist
Chiropractor	Physical Education Teacher
Clinical Exercise Physiologist	Physician Physician Assistant
Dietitian / Sports Dietitian	Prosthetist (limb)
Exercise & Sports Psychologist	Professor of Exercise Science
Fitness Industry Professional / Manager	Public Health Professional
Occupational Therapist	Scientist / Researcher / Lab Technician
Orthotist (brace)	Sports Conditioning/Strength Coach

Two Concentrations

- We have two concentrations within the Exercise Science Bachelor of Science degree program
 - Clinical and Pre-Professional Studies
 - Sports Conditioning

Typical Careers for Clinical Track

- Cardiac and Pulmonary Rehabilitation Specialists
- Clinical Exercise Physiologists
- Personal Trainers
- Fitness/Health Facility Managers
- Work-Site Wellness Coordinators
- Group Fitness Instructors

Typical Graduate Study for Clinical Track BS

- Allied Health Programs (Physical Therapy, Occupational Therapy, Physician's Assistant, Nursing, Chiropractic, Acupuncturist, Medical School)
- Exercise Science
- Exercise Physiology
- Biomechanics
- Motor Learning
- Athletic Training
- Nutrition

Typical Career Track for Sports Conditioning

- Strength and Conditioning Coaches
- Personal Trainers
- Fitness/Health Facility Managers
- Work-Site Wellness Coordinators
- Group Fitness Instructors

Typical Graduate Study for Sports Conditioning Track BS

- Exercise Science
- Exercise Physiology
- Physiology
- Biomechanics
- Motor Learning
- Nutrition

Which jobs require further education?

Acupuncturist	Perfusionist (heart/lung machine)
Athletic Trainer	Physical Therapist
Chiropractor	Physician Assistant
Dietitian / Sports Dietitian	Professor of Exercise Science
Exercise & Sports Psychologist	Public Health Professional
Physician	Scientist / Researcher / Lab Technician
Occupational Therapist	Sports Technologist / Engineer

MSU Exercise Science Program Requirements

- Freshmen
- Transfer students (internal and external)
- Retention in Clinical & Pre-Professional Studies Concentration (GPA 2.75)
- Retention in Sports Conditioning concentration (GPA 2.0)

Will I be able to attend graduate school?

- YES, MS degrees in Exercise Science
- The Clinical & Pre-Professional Studies concentration will help students to prepare for
 - Physical Therapy
 - Occupational Therapy
 - Medical Doctor
 - Physician Assistant
 - Acupuncturist
- We do NOT have affiliations / articulation agreements with any PT schools
 - Through advising, we suggest courses needed for PT school
 - We are an Exercise Science program first

Requirements for MSU Athletic Training Graduate Program

- Human Anatomy and Physiology
- Kinesiology, Biomechanics, or Anatomical Kinesiology
- Exercise physiology or Muscle Physiology
- General Chemistry
- Nutrition
- General Physics
- Statistics
- General Psychology
- Motor Learning or Motor Development

What if I want to go to PT School?

- www.PTCAS.org
 - Check requirements with intended grad program
- Typical requirements:
 - Anatomy and Physiology 1 and 2
 - Principles of Biology 1 and 2 (+ math 100)
 - General Chemistry 1 and 2 (+ math 100)
 - College Physics 1 and 2 (+ math 100)
 - Psychology, Developmental Psychology
 - Statistics
 - Exercise Physiology
- US average GPA for acceptance in 2019 = **3.6**

What should I take freshman year?

<u>Fall Semester</u>	<u>CH</u>	<u>Spring Semester</u>	<u>CH</u>
HPEM 199 – Freshman Seminar	1.0	HLTH 101 – Personal Health Issues	3.0
ENWR 105 – College Writing 1	3.0	ENWR 106 – College Writing 2	3.0
CMST 101 – Fundamental of Speech	3.0	PSYC 101 – General Psychology	3.0
BIOL 244 – Anatomy & Physiology 1	4.0	BIOL 245 – Anatomy & Physiology 2	4.0
PEMJ 131 – Fitness Activities	3.0	HPEM 150- Principles & Practice of Emergency Care	3.0
Total	14.0	Total	16.0

Four-Year Plan: Clinical & Pre-Professional Studies

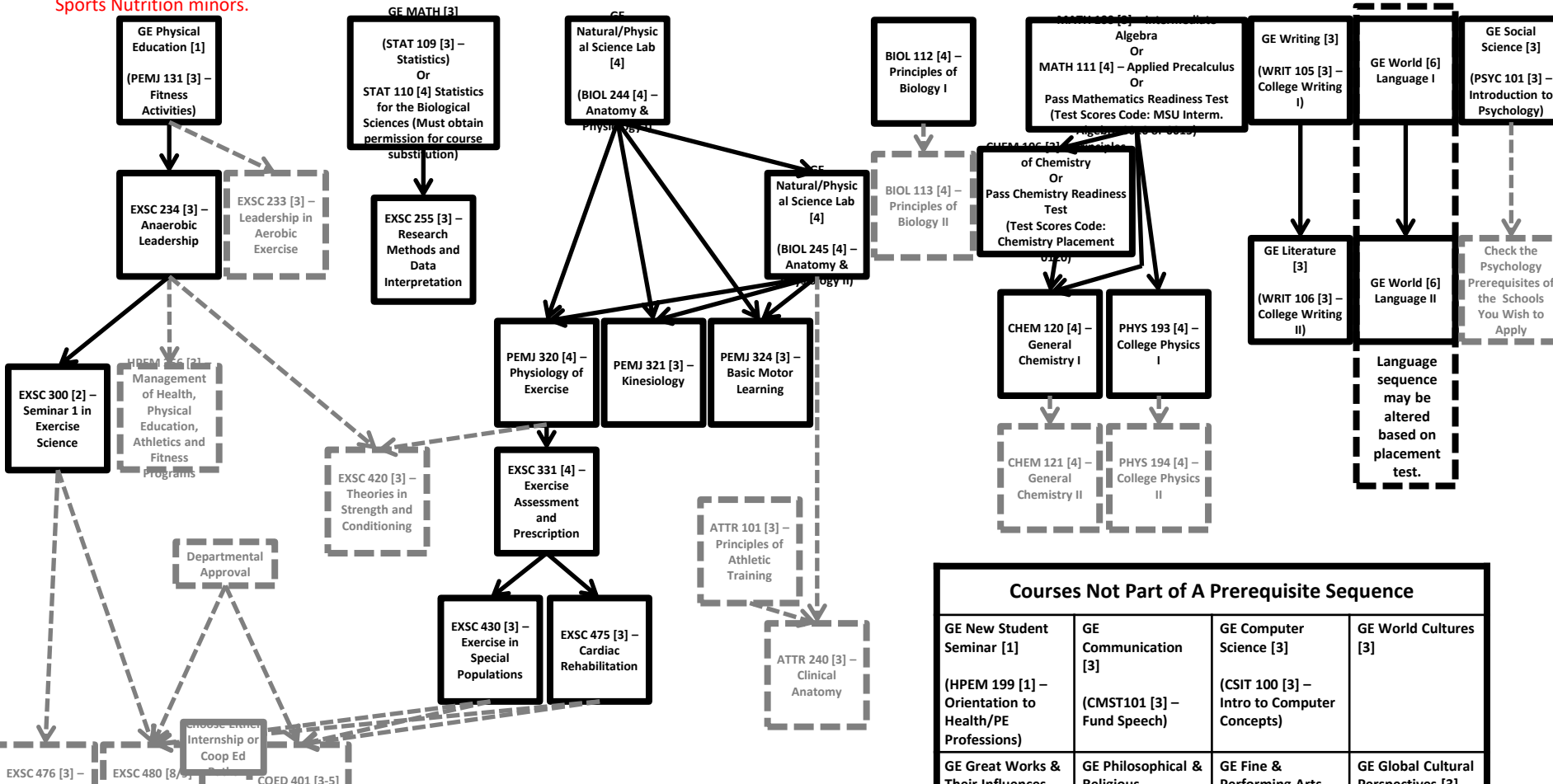
FIRST YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
Freshman Seminar in Health & PE	HPEM 199	1	Communication	CMST 101	3
Fitness Activities	PEMJ 131	3	Principles & Practices of Emergency Care	HPEM 150	3
Mammalian Anatomy & Physiology I	BIOL 244	4	Mammalian Anatomy & Physiology II	BIOL 245*	4
Writing	WRIT 105	3	Literature	WRIT 106	3
Personal Health Issues	HLTH 101	3	GE Mathematics	STAT 109 (STAT 110 [4] can be taken with course substitution)	3
			Intermediate Algebra or Pass Math Readiness Exam	MATH 100 (MATH 111 [4] can be taken instead)	0-3
	Total:	14		Total:	16-19
SECOND YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
World Language I		3	World language II		3
General Psychology	PSYC 101	3	Physiology of Exercise	PEMJ 320*	4
Research Methods and Data Interpretation	EXSC 255*	3	Nutrition	NUFD 182	3
College Physics I	PHYS 193*	4	Free Elective or College Physics II	PHYS 194*	4
Philosophical and Religion Perspective		3	Principles of Chemistry or Pass Chemistry Readiness Exam	CHEM 106	0-3
	Total:	16		Total:	14-17
THIRD YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
Basic Motor Learning	PEMJ 324*	3	Kinesiology	PEMJ 321*	3
Exercise Assessment and Prescription	EXSC 331*	4	Seminar I in Exercise Science	EXSC 300*	2
Leadership in Anaerobic Program	EXSC 234*	3	GE Computer Science	CSIT 100, 104, 111, 112 or INFO 173	3
General Chemistry I	CHEM 120*	4	Free Elective or General Chemistry II	CHEM 121*	4
Principles of Biology I	BIOL 112*	4	Principles of Biology II (Recommended but Not Required)	BIOL 113*	0-4
			GE American / European History		3
	Total:	18		Total:	15-19
FOURTH YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
Free Elective or Theories in Strength & Conditioning	EXSC 420*	3	GE Interdisciplinary Studies		3
Found & Practices of Cardiac Rehabilitation	EXSC 475*	3	GE World Cultures		3
Exercise for Special Populations	EXSC 430*	3	GE Great Work & Their Influences		3

Four-Year Plan: Sports Conditioning

FIRST YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
Freshman Seminar in Health & PE	HPEM 199	1	Communication	CMST 101	3
Fitness Activities	PEMJ 131	3	Principles & Practices of Emergency Care	HPEM 150	3
Mammalian Anatomy & Physiology I	BIOL 244	4	Mammalian Anatomy & Physiology II	BIOL 245*	4
Writing	WRIT 105	3	Literature	WRIT 106	3
Personal Health Issues	HLTH 101	3	GE Mathematics	STAT 109 <small>(STAT 110 [4] can be taken with course substitution)</small>	3
	Total:	14		Total:	16
SECOND YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
World Language I		3	World language II		3
General Psychology	PSYC 101	3	Physiology of Exercise	PEMJ 320*	4
Research Methods and Data Interpretation	EXSC 255*	3	Nutrition	NUFD 182	3
Leadership Aerobic Programming	EXSC 233*	3	GE Great Work & Their Influences		3
GE Global Cultural Perspectives		3	Philosophical and Religion Perspective		3
	Total:	15		Total:	16
THIRD YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
Basic Motor Learning	PEMJ 324*	3	Kinesiology	PEMJ 321*	3
Exercise Assessment and Prescription	EXSC 331*	4	Seminar I in Exercise Science	EXSC 300*	2
Leadership Anaerobic Programming	EXSC 234*	3	GE Computer Science	CSIT 100, 104, 111, 112 or INFO 173	3
Fundamentals of Chemistry	CHEM 113	4	GE American / European History		3
GE Fine and Performing Art		3	Management Athletics/PE/Fit	HPEM 356*	3
			GE Interdisciplinary Studies		3
	Total:	17		Total:	17
FOURTH YEAR					
Fall Semester	Course	HR	Spring Semester	Course	HR
Theories in Strength & Conditioning	EXSC 420*	3	Seminar II in Exercise Science	EXSC 476*	3
Yoga Relaxation	EXSC 151	1	Internship in Exercise Science or free electives and COED 402 4-credits if COED 401 already completed	EXSC 480*	8-9
GE World Cultures		3			
Free Elective (May Include COED 401 4-credits)		7			
	Total:	14		Total:	11-12
TOTAL REQUIRED CREDITS = 120 (range shown in suggested 4 year plan 120 – 121)					

Exercise Science with a Concentration in Clinical & Pre-Professional Prerequisite Course Sequence

The prerequisites listed on the slide only apply to Exercise Science students. They are different for PE and Sports Nutrition minors.



Free Electives

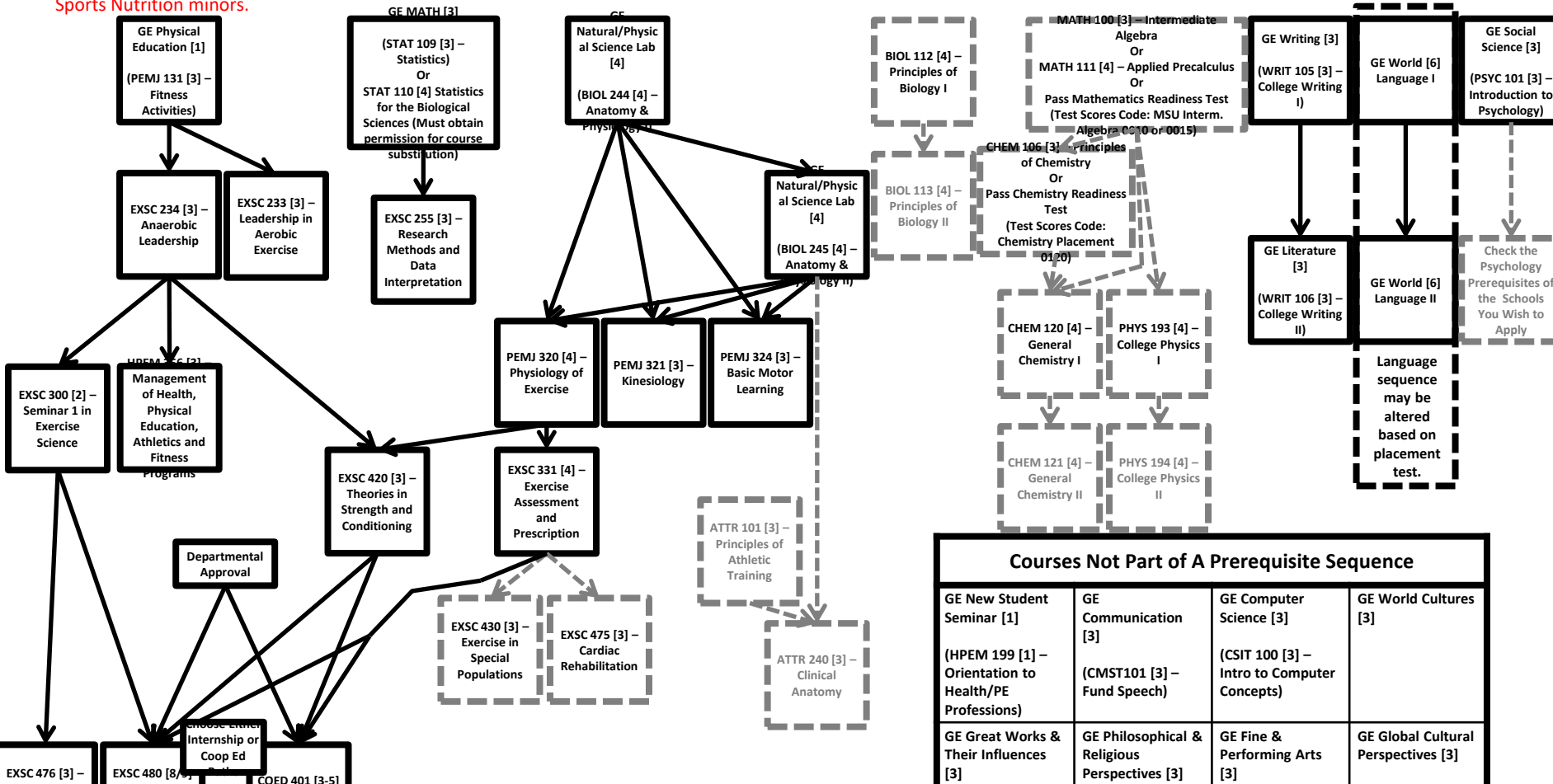
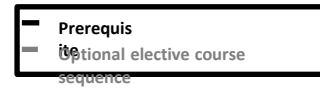
- 13-22 free elective credits are needed to reach the 120 credits required to graduate.
- Recommended free elective courses with prerequisite are listed above in grey.
- The last 24 credits must be taken at MSU and cannot be transferred in.
- Every graduate school requires a different list of prerequisite courses. It is the responsibility of the student to determine the prerequisite courses they will need to apply to the graduate schools of their choice. This may require students to take additional courses at other colleges/universities.

Courses Not Part of A Prerequisite Sequence			
GE New Student Seminar [1]	GE Communication [3]	GE Computer Science [3]	GE World Cultures [3]
(HPEM 199 [1] – Orientation to Health/PE Professions)	(CMST101 [3] – Fund Speech)	(CSIT 100 [3] – Intro to Computer Concepts)	
GE Great Works & Their Influences [3]	GE Philosophical & Religious Perspectives [3]	GE Fine & Performing Arts [3]	GE Global Cultural Perspectives [3]
GE American & European History [3]	GE Interdisciplinary Studies [3]		
Non-General Education Courses			
HPEM 150 [3] – Principles and Practice of Emergency Care.	NUFD 182 [3] – Nutrition	HLTH 101 [3] – Personal Health Issues	(Optional) EXSC 151 [1] - Yoga, Relaxation and Stress Reduction

Exercise Science with a Concentration in Sports

Conditioning Prerequisite Course Sequence

The prerequisites listed on the slide only apply to Exercise Science students. They are different for PE and Sports Nutrition minors.



Courses Not Part of a Prerequisite Sequence			
GE New Student Seminar [1]	GE Communication [3]	GE Computer Science [3]	GE World Cultures [3]
(HPEM 199 [1] – Orientation to Health/PE Professions)	(CMST101 [3] – Fund Speech)	(CSIT 100 [3] – Intro to Computer Concepts)	
GE Great Works & Their Influences [3]	GE Philosophical & Religious Perspectives [3]	GE Fine & Performing Arts [3]	GE Global Cultural Perspectives [3]
GE American & European History [3]	GE Interdisciplinary Studies [3]		
Non-General Education Courses			
HPEM 150 [3] – Principles and Practice of Emergency Care.	NUFD 182 [3] – Nutrition	HLTH 101 [3] – Personal Health Issues	EXSC 151 [1] - Yoga, Relaxation and Stress Reduction
CHEM 113 [4] – Fundamentals of Chemistry (Graduate schools often require CHEM 120 [4] which can be substituted for CHEM 113 with permission)			

Free Electives

- 6-16 free elective credits are needed to reach the 120 credits required to graduate.
- Recommended free elective courses with prerequisite are listed above in grey.
- The last 24 credits must be taken at MSU and cannot be transferred in.
- Every graduate school requires a different list of prerequisite courses. It is the responsibility of the student to determine the prerequisite courses they will need to apply to the graduate schools of their choice. This may require students to take additional courses at other colleges/universities.

Check the Psychology Prerequisites of the Schools You Wish to Apply

Language sequence may be altered based on placement test.

Most Exercise Science Classes in University Hall Classrooms



Several Classes in Exercise Science Lab



THANK YOU!

Questions?

Contact Dr. Bill Sullivan

sullivanw@montclair.edu