# Exercise Science and Rehabilitation

The Exercise Science and Rehabilitation degree is developed to promote thoughtful students who engage in the science, theory, and practice of enhancing quality of life for individuals. The Exercise Science and Rehabilitation Major is one of a kind bachelor's degree major with a rehabilitation focus. A component of Minot State University's vision is to inspire scholarship and creative activity among students, faculty, and staff. This vision provides faculty with the direction to enhance student's opportunity to become critical thinkers who can communicate effectively. The Minot State University Exercise Science and Rehabilitation Degree's mission is to provide students with an educational experience that will allow them to pursue exercise science as a field and obtain certification in various National Strength and Conditioning Association certifications and/or American College of Sports Medicine certifications that require a bachelor's degree. In addition, the degree is designed to provide students with a bachelor's degree that would provide the necessary course work in pre-professional degrees based on the route the student chooses. Examples of some of the pre-professional degree routes are: Athletic Training, Physical Therapy, and Medical School.

The Exercise Science and Rehabilitation BS utilizes shared faculty and courses within the Teacher Education & Kinesiology Department, as well as the limited number of new courses. The Exercise Science and Rehabilitation BS degree contrasts with the current Corporate Fitness and Wellness Management BS degree in that it has additional science courses, therapeutic exercise courses, and graded exercise testing courses. The program requirements are listed below.

- A minimum of a 2.5 GPA within the Exercise Science and Rehabilitation major with no support or required Exercise Science and Rehabilitation course grades below a "C" required for graduation.

## Bachelor of Science with a Major in Exercise Science and Rehabilitation

| **Exercise Science and Rehabilitation BS Program Requirements** | | |
|---|---|---|
| **General Education** | | **38-40** |
| **Required Support Courses** | | |
| May be used to satisfy General Education Requirements | | |
| KIN 120 | Strength Training | 1 |
| KIN 126 | Group Exercise | 1 |
| BIOL 220 | Anatomy and Physiology I | 4 |
| BIOL 221 | Anatomy and Physiology II | 4 |
| MATH 103 | College Algebra | 4 |
| MATH 210 | Elementary Statistics | 4 |
| PSY 111 | Introduction to Psychology | 3 |
| **Required ESR Courses** | | |
| ATR 207 | Prevention and Care of Injuries | 2 |
| ESR 206 | Medical Conditions | 3 |
| ESR 226 | Methods of Teaching Group Exercise | 2 |
| ESR 227 | Strength and Conditioning Programming Principles and Methods | 2 |
| ESR 303 | Therapeutic Exercise I | 3 |
| ESR 304 | Therapeutic Exercise II | 3 |
| ESR 308 | Biomechanics | 2 |
| ESR 305 | Therapeutic Exercise III | 3 |
| ESR 306 | Health Risk Appraisal | 2 |
| ESR 316 | Graded Exercise Testing and Prescription | 2 |
| ESR 323 | Basic EKG for Exercise Science | 2 |
| ESR 342 | Exercise Programming for Older Adults | 2 |
| ESR 414 | Pathomechanics | 2 |
| KIN 225 | Fitness Leadership | 2 |
| KIN 301 | Psychomotor Development | 2 |
| KIN 325 | Personal Training Methods | 2 |
| KIN 334 | Nutrition for Physical Performance | 2 |
| KIN 407 | Psychology of Physical Education and Athletes | 2 |
| KIN 431 | Kinesiology | 3 |
| KIN 433 | Physiology of Exercise | 3 |
| KIN 441 | Evaluation of Psychomotor Performance | 3 |

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|---|---|---|
| KIN 497 | Practicum in CFWM and ESR | 1-18 |
| HMS 215 | Principles of Pharmacology | 3 |
| HMS 208 | Medical Terminology | 2 |
| **Electives as required to meet 120 credits** | | |
| Students seeking professional certification must follow internship requirements for that certification. | | |
| **Students must complete one of the options.** | | |
| **Total Hours** | | **114-133** |

**Exercise Science and Rehabilitation Major Option A: Professional Certification Route**

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| ESR 317 | Graded Exercise Testing Lab | 1 |
| ESR 425 | Exercise Science and Rehabilitation Capstone | 1 |

**Exercise Science and Rehabilitation Major Option B: Pre-Athletic Training**

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|---|---|---|
| ESR 317 | Graded Exercise Testing Lab | 1 |
| ESR 425 | Exercise Science and Rehabilitation Capstone | 1 |
| CHEM 121 | General Chemistry I | 5 |
| or CHEM 118 | General, Organic, and Biological Chemistry | |
| BIOL 150 | General Biology I | 4 |
| or BIOL 151 | General Biology II | |
| PSY 255 | Child and Adolescent Psychology | 3 |
| Elect from (4-5 cr): | | |
| PHYS 211 | College Physics I | 4 |
| or PHYS 251 | University Physics I | |

**Exercise Science and Rehabilitation Major Option C: Pre-Physical Therapy**

| | | |
|---|---|---|
| CHEM 121 | General Chemistry I | 5 |
| CHEM 122 | General Chemistry II | 5 |
| BIOL 150 | General Biology I | 4 |
| BIOL 151 | General Biology II | 4 |
| BIOL 220 | Anatomy and Physiology I | 4 |
| BIOL 221 | Anatomy and Physiology II | 4 |
| MATH 103 | College Algebra | 4 |
| MATH 210 | Elementary Statistics | 4 |
| PHYS 211 | College Physics I | 4 |
| PHYS 212 | College Physics II | 4 |
| PSY 255 | Child and Adolescent Psychology | 3 |
| PSY 270 | Abnormal Psychology | 3 |
| SOC 110 | Introduction to Sociology | 3 |

**Exercise Science and Rehabilitation Major Option D: Pre-Occupational Therapy**

| | | |
|---|---|---|
| BIOL 150 | General Biology I | 4 |
| or BIOL 151 | General Biology II | |
| CHEM 121 | General Chemistry I | 5 |
| or CHEM 118 | General, Organic, and Biological Chemistry | |
| BIOL 220 | Anatomy and Physiology I | 4 |
| BIOL 221 | Anatomy and Physiology II | 4 |
| MATH 103 | College Algebra | 4 |
| MATH 210 | Elementary Statistics | 4 |
| PSY 111 | Introduction to Psychology | 3 |
| PSY 255 | Child and Adolescent Psychology | 3 |
| PSY 270 | Abnormal Psychology | 3 |
| SOC 110 | Introduction to Sociology | 3 |
| Gen Ed Humanities requirements 6 credits in at least 2 areas. | | |

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| **Exercise Science and Rehabilitation Major Option E: Pre-Physician Assistant** | | |
| CHEM 121 | General Chemistry I | 5 |
| CHEM 122 | General Chemistry II | 5 |
| BIOL 220 | Anatomy and Physiology I | 4 |
| BIOL 221 | Anatomy and Physiology II | 4 |
| MATH 103 | College Algebra | 4 |
| MATH 210 | Elementary Statistics | 4 |
| PSY 255 | Child and Adolescent Psychology | 3 |
| or PSY 270 | Abnormal Psychology | |
| PSY 270 | Abnormal Psychology | 3 |
| BIOL 215 | Genetics | 4 |
| BIOL 202 | Introductory Microbiology | 4 |
| **Elect 6 credits from:** | | |
| CHEM 341 | Organic Chemistry I | 5 |
| CHEM 342 | Organic Chemistry II | 5 |
| CHEM 480L | Biochemistry Laboratory | 2 |
| CHEM 481 | Biochemistry I | 3 |
| CHEM 482 | Biochemistry II | 3 |
| BIOL 150 | General Biology I | 4 |
| BIOL 151 | General Biology II | 4 |
| BIOL 480 | Molecular Biology | 4 |

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| **Exercise Science and Rehabilitation Major Option F: Pre-Chiropractic** | | |
| CHEM 121 | General Chemistry I | 5 |
| CHEM 122 | General Chemistry II | 5 |
| CHEM 341 | Organic Chemistry I | 5 |
| CHEM 342 | Organic Chemistry II | 5 |
| BIOL 150 | General Biology I | 4 |
| BIOL 220 | Anatomy and Physiology I | 4 |
| BIOL 221 | Anatomy and Physiology II | 4 |
| MATH 103 | College Algebra | 4 |
| MATH 210 | Elementary Statistics | 4 |
| PHYS 211 | College Physics I | 4 |
| PHYS 212 | College Physics II | 4 |
| HUM 251 | Humanities | 3 |
| HUM 252 | Humanities | 3 |
| HUM 253 | Humanities | 3 |

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|---|---|---|
| **Exercise Science and Rehabilitation Major Option G: Pre-Med** | | |
| SOC 110 | Introduction to Sociology | 3 |
| MATH 103 | College Algebra | 4 |
| MATH 210 | Elementary Statistics | 4 |
| CHEM 121 | General Chemistry I | 5 |
| CHEM 122 | General Chemistry II | 5 |
| CHEM 341 | Organic Chemistry I | 5 |
| CHEM 342 | Organic Chemistry II | 5 |
| BIOL 220 | Anatomy and Physiology I | 4 |
| BIOL 221 | Anatomy and Physiology II | 4 |
| BIOL 150 | General Biology I | 4 |
| BIOL 151 | General Biology II | 4 |
| PHYS 211 | College Physics I | 4 |
| PHYS 212 | College Physics II | 4 |

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|---|---|---|
| PSY 111 | Introduction to Psychology | 3 |
| Electives Recommended coursework | Biochemistry, Genetics, Cell biology | |

This concentration will provide a background for exercise professionals to assist individuals at varying stages throughout the lifespan to become or stay active. In addition, this concentration will provide education in the recognition of proper and improper movement patterns, as well as how to perform and instruct appropriate therapeutic exercises. BIOL 220 Anatomy and Physiology I or BIOL 115 Concepts of Anatomy and Physiology is a required support course for this concentration, both of these courses are science general education options

## Exercise Rehabilitation Concentration

| | | |
|---|---|---|
| ESR 308 | Biomechanics | 2 |
| ESR 414 | Pathomechanics | 2 |
| KIN 431 | Kinesiology | 3 |
| Choose 6 credits from below: | | |
| ESR 303 | Therapeutic Exercise I | 3 |
| ESR 304 | Therapeutic Exercise II | 3 |
| ESR 305 | Therapeutic Exercise III | 3 |
| KIN 441 | Evaluation of Psychomotor Performance | 3 |
| **Total Hours** | | **19** |

Program Description: BIOL 220 Anatomy and Physiology I or BIOL 115 Concepts of Anatomy and Physiology is a required support course for this concentration, both of these courses are science general education options.

## Exercise Science Concentration

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|---|---|---|
| KIN 431 | Kinesiology | 3 |
| KIN 433 | Physiology of Exercise | 3 |
| ESR 306 | Health Risk Appraisal | 2 |
| ESR 323 | Basic EKG for Exercise Science | 2 |
| ESR 316 | Graded Exercise Testing and Prescription | 2 |
| ESR 317 | Graded Exercise Testing Lab | 1 |
| **Total Hours** | | **13** |

The courses required for the Strength and Conditioning Concentration would provide students with the knowledge to become strength and conditioning coaches for individuals or teams. BIOL 220 Anatomy and Physiology I or BIOL 115 Concepts of Anatomy and Physiology is a required support course for this concentration, both of these courses are science general education options.

## Strength and Conditioning Concentration

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|---|---|---|
| KIN 120 | Strength Training | 1 |
| ESR 227 | Strength and Conditioning Programming Principles and Methods | 2 |
| ESR 308 | Biomechanics | 2 |
| KIN 334 | Nutrition for Physical Performance | 2 |
| KIN 431 | Kinesiology | 3 |
| KIN 433 | Physiology of Exercise | 3 |
| **Total Hours** | | **13** |

## Sports Medicine Concentration

| | | |
|---|---|---|
| ATR 207 | Prevention and Care of Injuries | 2 |
| KIN 210 | First Aid and CPR | 1 |
| KIN 431 | Kinesiology | 3 |
| Select two of the following: | | 6 |
| ESR 206 | Medical Conditions | |
| ESR 304 | Therapeutic Exercise II | |
| ESR 308 | Biomechanics | |
| **Total Hours** | | **12** |