

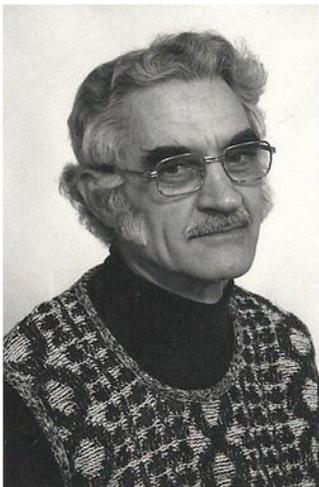
Program Highlights

Overview of the Exercise Science Field

The exercise science field has numerous facets. There are professionals with degrees in exercise science working in the personal training industry, as strength & conditioning specialists, in worksite wellness settings, in hospitals and clinics coordinating adult fitness programs for cardiac and pulmonary rehabilitation, and in the wellness coaching field. Minnesota State Mankato's alumni are well established throughout the mid-west region of the USA. We also have ties throughout the world, from our alumni and our collaborative research with international scholars.

Our History

In the 1970's, the field of exercise science emerged out of physical education as a distinct discipline. The exercise science program at Minnesota State Mankato was a fixture from the very beginning and has a long-standing history. MSU faculty served as pioneers in the field. Dr. Clem Thompson (below) was one such professor who authored 14 editions of the textbook *Manual of Structural Kinesiology*. Clem was an advocate for the benefits of a physically active lifestyle and he has endowed a scholarship for current Minnesota State Mankato students. Dr. Kent Kalm (also below) helped develop one of the earliest graduate exercise science programs in the Midwest and is member of the Minnesota State Athletic Trainers' Association Hall of Fame. He too has endowed a scholarship for students with dual interests in exercise science and athletic training.



Dr. Clem Thompson (circa 1975)



Dr. Kent Kalm (circa 2000)

Exercise Science at Minnesota State Mankato Today

Our undergraduate program has grown to over 300 students with diverse interests. We also maintain a selective graduate program producing tomorrow's experts and scholars in the exercise science field. Our faculty and facilities have expanded and below is a summary changes that demonstrate our program's commitment to excellence.

- Each undergraduate exercise science laboratory course has outcome-based experiences. Through expanded internal and external funds, we have added graduate assistants to support the undergraduate laboratories taught as MSU. Students can gain specific laboratory experiences in biomechanics, exercise physiology, sports nutrition, athletic testing & conditioning, graded exercise testing & prescription, and worksite wellness.
- We have expanded and continue to plan expansion of our curriculum and elective courses. Notable changes include the addition of HP 293 Group Exercise Instruction and HP 467 Worksite Wellness, starting in the 2012-13 academic year.
- We replaced and added metabolic units: assessment of oxygen uptake is the bedrock of any exercise physiology course and our facility has two Parvo Medics Units (\$25,000 each). Our lab has published several articles which have advanced the practice of $\dot{V}O_{2max}$ and gas exchange threshold testing.
- Ergometers /treadmills: we have added more egometers/treadmills to our facilities. We have multiple Quinton treadmill/ECG units for clinical exercise testing and have recently added a Woodway treadmill with sprinting assessment technology (~\$30,000).
- Kinematic analyses: we have expanded our supplies for undergraduate video technology (more individual video recorders) and have procured a high speed video analysis system (1000 fps). Our laboratory provides biomechanical support for the Force Science Institute, a non-profit organization that advances the science behind the use of force by police officers.
- Mechanical analyses: we have expanded to add multiple force platform systems, electronic goniometers, and accelerometers. We also have numerous GPS watches and have validated an all-out exercise test which utilizes GPS technology.
- Body composition: we have every aspect of body composition technology. Our hydrostatic densitometry system is instrumented with multiple triangulated sensors. We replaced our Bod Pod in 2011 and our staff and graduate students completed retraining in 2012.
- We renovated supplies and capacity for two blood chemistry analyzers to enhance our lab's capacity for lipid/glucose assessment and the assessment of C reactive protein.
- We have a large supply of grip dynamometers, hand-held force dynamometers, thermisters, telemetry heart rate monitors, blood pressure cuffs, etc.
- We have an 8-channel electromyography unit for neuromuscular assessment.
- Our athletic training center offers state-of-the art equipment including the Hydro Track underwater treadmill, the Proprio System balance platform, and the Biodex Isokinetic Dynamometer.