

Proposal for Establishing a Center for Interdisciplinary Biomedical Education and Research (CIBER)

Rationale

Presently at UCO, we have numerous faculty members from different departments with a wealth of talent and knowledge in various areas of biomedical and health science research. Over the past several years these researchers have continually demonstrated their productivity through their ability to publish in scientific journals, actively participate in Oklahoma INBRE, and secure internal and external funding for their research. UCO is now in a position to establish a center that will provide a dynamic environment for faculty to expand their research, and attract talented undergraduate and graduate students. There is a compelling need to solve complex social and biomedical problems that are crucial to human welfare and society in general and that requires more broadly trained scientists with multidisciplinary perspectives that include physical, mathematical, social, and biological sciences. Accordingly, **CIBER** (the Center for Interdisciplinary Biomedical Education and Research) will be dedicated to interdisciplinary biomedical and health science education and research.

Goals

This center will promote and develop:

- socially and ethically responsible scientists capable of contributing to solutions for health problems that confront modern society;
- interaction and collaboration among faculty members and among faculty and students;
- problem-solving skills in the context of hypothesis-driven research;
- technical and analytical research skills;
- the enhancement of biomedical and health science educational programs;
- collaboration with local and state biomedical and health science industries and research institutions to create educational and employment opportunities for students;
- Community involvement and outreach services;

Benefits

Students will:

- gain broad exposure to biomedical and health science research;
- interact with faculty and students across different disciplines;
- learn techniques that address biomedical and health science research questions;
- experience the synergy of an interdisciplinary approach to understanding biological systems;
- develop an appreciation for interrelationships among the disciplines;
- participate in enrichment activities such as journal clubs and seminar series;
- learn how to present experimental results verbally and in writing;
- enhance their competitiveness for graduate programs, professional programs, and positions in the biotechnology and health science industry.

Faculty members will:

- have access to core facilities and shared equipment;
- have the opportunity to work in a highly collaborative research environment;
- be eligible for reassignment time in order to conduct undergraduate research and training (through CURE-STEM);
- be eligible to receive start-up funds (through CURE-STEM);
- be eligible to receive support for attending national meetings and professional development programs/workshops in areas such as grant writing, technology development, and course development (through CURE-STEM);

- be able to strengthen the depth and breadth of their research projects through interdisciplinary research, which will enhance their ability to secure external funding.

Activities

- joint research activities
- student seminars
- internal poster presentations
- monthly interdisciplinary meetings
- invited external speakers

Potential Core Facilities (On-site and Shared)

- genomics
- proteomics
- animal facilities
- tissue/cell culture
- microscopy/Imaging
- walk-in cold room
- computational laboratory
- anatomy laboratory
- biomedical engineering laboratory
- observational/interview laboratory
- technical support

Externally Funded Facility Design

Faculty participants will be expected to develop common goals with respect to the use of space. Future facility will need to accommodate present needs, such as lab and office space for investigators, but also handle future demands of potential growth. To promote interdisciplinary research, a general “Open Lab” format would be desirable. This format facilitates interaction between investigators and tends to be more flexible than a closed lab format. However there should be some closed lab space for dedicated equipment or core facilities. There will be a need for both wet and dry labs, equipment zones to house shared equipment, meeting rooms, and, possibly, classrooms. There will be designated areas/space for departments to ensure that each department has representation. The participating faculty and students will share currently available space and resources. Any future space expansion and expenditure increases will come from external funding and other avenues that are already part of the long-term planning of the College of Mathematics and Science and addressed through academic planning processes (e.g., AALT Fall Retreat).

Membership Eligibility

Membership will be granted to full-time faculty members who have (or propose) an active interdisciplinary biomedical or health science research project, a desire to train students, a willingness to participate in grant writing, a commitment to publishing their research, and a willingness to share and contribute to joint efforts in the pursuit of biomedical and health science research and education. To become a member, a Memorandum of Understanding will be signed by the Dean, Director, Chair and faculty members of each proposed collaboration.

Organizational Leadership

A Director, appointed by the Dean in consultation with Department Chairpersons, will oversee the operation and organization of the Center.

A Steering Committee made up of investigators will advise the Director.

Divisions with different emphases of biomedical research can be formed by investigators with common interests.