

# General Information

The pharmaceutical industry and academic biomedical research institutions are increasingly realizing the essential role of intact organ systems and *in vivo* animal models in the conduct of biomedical research. There is a growing need for functional analysis of complete biological systems that include the complex genetic and environmental determinants that are only expressed in whole organisms. Examples include the dynamics of the cardiovascular system and neuronal control of complex motor behaviors.

Researchers who are skilled in taking research findings from cellular and molecular studies into integrated organ systems and whole animal studies are in great demand. To meet this need, the National Institute of General Medical Sciences (NIGMS) has provided funding for short courses to provide formal training in Integrative and Organ Systems Pharmacology (IOSP) and to enhance awareness of this rewarding career opportunity.



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## COLLABORATING INSTITUTIONS

**Five institutions provide faculty and internships for this Short Course:**

- [University of Nebraska Medical Center](#)
- [Creighton University Medical Center](#)
- [University of Kansas Medical Center](#)
- [Abbott](#)
- [Institute for Laboratory Animal Research](#), The National Academies

**Other participating institutions providing internships:**

- [University of Iowa](#)
- [University of Missouri - Columbia](#)
- [University of North Dakota](#)
- [University of Utah](#)

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## GOALS

- Establish a strong connection between *in vitro* studies, organ function *in situ*, and *in vivo* results.
- Introduce students to the role of *in vivo* methods in translational research, including safety and efficacy in drug discovery and development.
- Expose students to multiple animal models and the reasons for selecting a given model for a particular purpose.
- Provide significant hands-on experience with small animal models and some exposure to larger animal models.
- Provide reinforced training in responsible conduct of research, including improved ability to articulate the need for such work in health research.
- Improve the ability of students to communicate with other scientists across a broad spectrum of research activities.