Department of Biomedical Engineering

BIM 283 **Winter 2025**	**Advanced Design of Experiments for Biomedical Engineers**	**David M. Rocke** **January 7, 2025**

Course Information

Class Meetings:	Tuesday and Thursday 10:00am–11:50am 1060 Bainer
Office Hours:	Tuesday 1:00pm–2:00pm, 140B Med Sci 1C Or by appointment, in person or on Zoom.
Office:	140B Med Sci 1C Cell: 530-304-1019 e-mail: dmrocke@ucdavis.edu web site: http://dmrocke.ucdavis.edu/ Email list: bim283-w25@ucdavis.edu Canvas site: BIM 283 001 WQ 2025
Required Text:	**Statistics for Experimenters, Second Edition.** Box, GEP, Hunter, JS, and Hunter, WG, Wiley, 2005.
Software:	Lectures and homework will utilize R for computation.
Course Grading:	Letter Grades based on – Homework – Midterm Exam – Final Exam
Prerequisites	It is assumed that the student has taken at least one introductory statistics class. –

This course covers design and statistical analysis of experiments in biomedical engineering after a refresher in basic statistics. We will cover concepts and methods of experimental design such as randomization, blocking, covariate adjustment, and factorial designs. We will also cover methods specific to common biological assay types such as PCR, mass spectrometry (proteomics and metabolomics), immunoassays, and RNA-Seq.