Paul A. Clingan

174 West 18th Avenue
3042 Smith Lab
The Ohio State University
Columbus, OH 43210-1278

614.205.6182 – cell
614.688.2306 – office
clingan.3@osu.edu

Experience:

Senior Lecturer – Department of Engineering Education, OSU – 01/02 - present

- Courses, primarily in the EEIC/EED:

  1281.01H, 1281.02H, 1282.01H, 1282.02H, 1181, 1182, 191.01H, 192.01H, 192.02H, 193.01H, 193.02H, 183, 185, 187, 694, Preface, London Honors

- Course Coordinator

  1281.0XH, 1281.01H, 1282.01H, 1282.02H

- Director Engineering Summer Experience (ESE), 2012 - 2016

  Responsible for all facets of week-long residential engineering program for high school students including: recruiting, planning, curriculum design, safety training, tours, UTA and GTA oversight, budgeting, housing, dining, scheduling, competition, website, and awards.

- Multidisciplinary Capstone Team Advisor, 2013 - 2020

  Advised teams of multidisciplinary capstone students on how to: define problem scope and deliverables, interact externally with sponsor, faculty members acting as project resources, and within the team, manage project and funding, document and present project findings.

- Established the **Rick Freuler and John Demel FEH Design Fund**, 2021

- Second Year Transformational Experience Program (STEP) Advisor, 2013 - 2015

  Advised cohort of STEP students: Gave presentations, coordinated discussions relating to strengths, values, and personal and project aspirations, met with students formally and informally in both group and one-on-one settings, advised students on project requirements and options, evaluated proposals. Attempted to improve connection between students and OSU.

- Curriculum Development

  Modify, improve, correct, supplement curriculum for all FEH courses wherever required. Primarily responsible for all new 1281.0XH MATLAB material including videos, presentations, quizzes, and assignments. Responsible for C/C++ videos. Significant historical role developing C/C++ material and quarter to semester transition responsibilities.

- Coordination

  FEH Robot course including course hardware and electronics, Proteus, FEH Linux, Redmine, 191.01H, 192.0XH, 193.0XH, 1281.0XH, 1282.0XH, laboratory development, Capstone Showcase

- Personnel

  Assist with UTA and GTA selection. Direct, lead, advise, and mentor 8+ TAs year round on projects ranging from grading, TA/student interaction, and in-class coordination to hardware, curriculum, and program development (see Coordination and ESE above).

- Research

  Contributed to several engineering education research presentations and papers. See Publications and Presentations. Review ASEE conference papers as needed/requested.

- Service

Serve on departmental committees. Classroom observation. APT and POA development. Write letters of recommendation for: study abroad, internships, full-time professional positions, graduate school, professional school, scholarships including Fulbright, and fellowships including NSF.

Research Assistant – Laboratory of Experimental Atherosclerosis, OSU – 09/01 – 12/01

- Performed computational fluid dynamic (CFD) calculations to support results from laboratory experiments which were published in peer reviewed journal. Created and meshed complex 3D geometries using Gambit. Performed CFD simulations using the finite element method solver FIDAP to predict shear stresses under various experimental conditions.

Graduate Research Associate – Cardiovascular Simulations Laboratory, OSU – 09/94 – 08/01

- Designed and performed fluid dynamic experiments in clear, flow-through arterial replicas. Used laser Doppler velocimetry to measure velocity components and determine near wall shear stresses. Investigated the effects of upstream flow disturbances, under steady and periodic flow, on downstream fluid dynamics. Published results and presented them at annual conferences.

- Designed and performed biweekly experiments in swine to investigate fluid dynamic effects upon vascular permeability and its relationship to atherosclerosis. Led 3-4 person experiment teams. Responsible for all aspects of experiments. Improved experimental methods and procedures.

Development Engineer I and II, UOP – Monirex Systems, Control Systems Group – 04/89 – 09/93

- Designed and developed real-time embedded industrial control systems for the petrochemical industry. Developed software requirements and overall architecture. Responsible for all phases of software development, including low and application level design, coding, and testing.

- Selected real-time operating system and mentored fellow team members on real-time principles. Designed and developed human-machine interface.

- Supported system deployment, field troubleshooting, and training activities. Developed custom software for several subsequent systems.

- Member Monirex Communications Team.

Education:

The Ohio State University, Columbus, OH
PhD student in Biomedical Engineering, 9/93-8/01
Graduate Research Associate in the Cardiovascular Simulations Laboratory

Bucknell University, Lewisburg, PA
Master of Science in Chemical Engineering, 1989
Bachelor of Science in Chemical Engineering, 1986

Awards:

The Charles E. MacQuigg Outstanding Teaching Award, The Ohio State University, April, 26, 2018

Residence on 10th Outstanding Faculty Award, April 4, 2014

Princeton Review's Best 300 Professors Award, April 10, 2012

The Charles E. MacQuigg Outstanding Teaching Award, The Ohio State University, May 11, 2010

The Charles E. MacQuigg Outstanding Teaching Award, The Ohio State University, May 9, 2006

UOP Special Recognition Award, UOP – Monirex Systems, Des Plaines, IL, 1991

Publications and Presentations:

1. B Morin, KM Kecskemety, KA Harper, PA Clingan, "Work In Progress: Parsons Problems as a Tool in the First-Year Engineering Classroom", ASEE Virtual Conference, 06/22/20 – 06/26/20

2. MA Vernier, PM Wensing, CE Morin, AH Phillips, BA Rice, KR Wegman, CP Hartle, PA Clingan, KM Kecskemety, RJ Freuler , "Design of a Full-Featured Robot Controller for Use in a First-Year Robotics Design Project", 121st ASEE Annual Conference & Exposition, Indianapolis, IN, 06/15/14 – 06/18/14.

3. DM Grzybowski, SM Abernathy, AC Boyd, D Cain, NL Hird, RR Madhavan, Y Shi, MT Spang, AA Strickland, PA Clingan, "Student Assisted Approach to Curriculum Changes to Facilitate a Flipped Classroom for First-Year Engineering Micro-/Nano-technology 'Lab-on-a-chip' Research Project", International Conference on Engineering Education and Research 2013, Marrakesh, Morocco, 07/01/13 – 07/05/13.

4. B Morin, KM Kecskemety, KA Harper, PA Clingan, "The Inverted Classroom in a First-Year Engineering Course", 120th ASEE Annual Conference & Exposition, Atlanta, GA, 06/23/13 – 06/26/13.

5. SM Abernathy, BE Carruthers, KF Presley, PA Clingan, "Introduction of CNC Milling to First-Year Engineering Students with Interests in Nanotechnolgoy and Microfluidics", 119th ASEE Annual Conference & Exposition, San Antonio, TX, 06/10/12 – 06/13/12.

6. Y Allam, DL Tomasko, J Merrill, B Trott, P Schlosser, PA Clingan, "Lab-on-a-chip Design-Build Project with a Nanotechnology Component in a Freshman Engineering Course," ASEE Annual Conference, Chicago, IL, 2006.

7. Y Allam, DL Tomasko, B Trott, P Schlosser, Y Yang, N Ferrell, PA Clingan, J Merrill, "Lab-on-a-chip Design-Build Project in a First-Year Engineering Course," AIChE Annual Meeting, San Francisco, CA, 2006.

8. PA Clingan, DL Tomasko, J Merrill, Y Allam, "Work in Progress: Micro-/Nano-technology 'Lab-on-a-chip' Research Project for First-Year Honors Engineering Program", 36th ASEE/IEEE Frontiers in Education Conference, San Diego, CA, October, 2006.

9. JA LaMack, HA Himburg, DM Grzybowski, PA Clingan, MH Friedman. "Model of the effect of hypercholesterolemia in swine on the arterial uptake of macromolecules" [Abstract]. Annals of Biomedical Engineering, V29 (Supp.1), pp. S-76, 2002.

10. PA Clingan and MH Friedman, "The effect of celiac and renal artery outflows on near-wall velocities in the porcine iliac arteries", Annals of Biomedical Engineering, V28, 2000.

11. MH Friedman, PA Clingan, and AL Hazel, "Parameterization of a model of the vascular permeability response to changes in mural shear", Submitted to European Society of Biomechanics meeting, Dublin, 2000.

12. MF Friedman, JM Henderson, JA Aukerman, and PA Clingan, "Effect of periodic alterations in shear on vascular macromolecular uptake", Biorheology, V37, 2000.

13. JM Henderson, JA Aukerman, PA Clingan, and MH Friedman, "Effect of Alterations in Femoral Artery Flow on Abdominal Vessel Hemodynamics in Swine", Biorheology 36, pp. 257-266 (1999).

14. PA Clingan and MH Friedman, "The effect of celiac and renal artery outflows on near wall velocities in the porcine iliac arteries", Annual Fall Meeting of the Biomedical Engineering Society and 21st Annual International Conference of the Engineering in Medicine and Biology Society, Atlanta, GA, October, 1999.

15. JM Henderson, JA Aukerman, PA Clingan, MH Friedman, "Effect of alterations in femoral artery flow on abdominal vessel hemodynamics in swine", Biorheology, V36, 1999.

16. MH Friedman, JA Aukerman, PA Clingan, JM Henderson, and DL Fry, "Modeling the Effect of Alternating Shear Levels on the Uptake of Albumin by the Porcine Iliac Arteries", Proc. 1999 Summer Bioengineering Conference, Big Sky, MT, June 1999, pp. 481-482.

17. MH Friedman, JA Aukerman, PA Clingan, JM Henderson, and DL Fry, "Effect of Alternating Mural Shear on Arterial Uptake of Macromolecules in Swine", Euromech Colloquium 389, "Physiological Flows and Flow-Structure Interactions", Graz, April 23, 1999

18. MH Friedman, JA Aukerman, PA Clingan, JF Flaherty, JM Henderson, and DL Fry, "Minimally Invasive Measurement and Estimation of Surgically-Induced Alterations in Abdominal Vessel Flows and Wall Shear Rates in the Pig using Laparoscopically Placed Flowmeters", 3rd World Congress of Biomechanics, Sapporo, August 7, 1998.

19. MH Friedman, JA Aukerman, PA Clingan, and JM Henderson, "Estimation of Surgically Manipulated Fluid Shear Stresses in the Abdominal Vessels of Swine from Measured Femoral Artery Flows", in "1998 Advances in Bioengineering", Yoganathan, A. P., ed. Amer Soc. Mech. Engrs, New York, 1998, pp. 43-44.

20. PA Clingan and MH Friedman, "Effect of celiac and renal flows on the hemodynamic environment of the external iliac arteries", Annual Fall Meeting of the Biomedical Engineering Society, State College, PA, October, 1996.