ABHIJIT KHARE
Wanner 140 P
College of Integrative Sciences and Arts
Math and Science Division
Arizona State University, Polytechnic campus
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Teaching Experience:

College of Integrative Sciences and Arts
School of Applied Sciences and Arts
(Arizona State University, Polytechnic campus)
Instructor of Physics (Applied Physics) (July 2023 – Present)

Instructional Professional (Applied Physics) (July 2017 – June 2023)

Courses taught/teaching: Introductory physics, general physics (algebra and trigonometry based) and university physics (calculus-based *Mechanics* and *Electricity and Magnetism*) lab courses and general physics and university physics recitation classes.

Job duties: To instruct and conduct lab sessions, to set-up and take-down of lab experiments each week, to grade lab reports, to develop laboratory manual, to modify and design new experiments, to teach recitation classes, to attend faculty meetings, to hold student office hours, to attend workshops, seminars, lecture series, and to conduct and attend other educational outreach events and activities.

BASIS Ahwatukee, Phoenix, AZ (July 2013 - May 2017)
Honors and AP Physics Teacher (8^{th} – 12^{th} grade)

Courses taught/teaching: 8^{th} grade Physics, Honors and AP Physics (algebra and trigonometry based) for the upper school. Other job duties include mentoring science club activities such as science bowl, teaching and conducting academic lab sessions for the 8^{th} and upper grade students who need additional support in math and physics.

School of Letters and Sciences; Arizona State University (Polytechnic Campus)
Mesa, AZ
Faculty Associate (Physics) (Contract position: Jan 2013 – May 2013)

Taught one section of General Physics I (PHY 111) and two sections of University Physics I (PHY 121) recitation courses.

MARICOPA COMMUNITY COLLEGES, AZ (Current Position)

Adjunct Faculty (Physics), **Phoenix College**, Phoenix, AZ
(Aug 2000 – Present)

Adjunct Faculty (Physics), **Paradise Valley Community College**, Phoenix, AZ
(May 2011 – Spring 2022)

Adjunct Faculty (Physics), **Gateway Community College**, Phoenix, AZ
(Jan 2015 – May 2020)

Adjunct Faculty (Physics), **Scottsdale Community College**, Scottsdale, AZ.
(Jan 2006 - Dec. 2013)

Adjunct Faculty (Mathematics), **South Mountain Community College**, Phoenix, AZ.
(August 2000 – May 2003)

Adjunct Faculty (Physical Sciences), **Mesa Community College**, Mesa, AZ.
(August 1999 – May 2021)

Adjunct Faculty (Math and Science), **Chandler-Gilbert Community College**, Chandler, AZ. (August 1998 – December 1999)

Course(s) taught/teaching:

- Introduction to Physics (PHY 101) (In-person/Online/Live-online)
- General Physics I (PHY 111) (In-person/Online/Live-online)
- General Physics II (PHY 112) (In-person/Online/Live-online)
- University Physics I (PHY 121) (In-person/Online/Live-online)
- University Physics II (PHY 131 (In-person/Online/Live-online)
- Introduction to Physical Science (PHS 110)
- Basic Algebra (MAT 091) (In-person)
- College Algebra (MAT 122) (In-person)
- Pre-Calculus (MAT 182)
- Math Concepts and Applications (MAT 102)

DeVry University, Phoenix, AZ

Adjunct Faculty (Math) (Contract period: October 2008 – April 2009)

Job duties include teaching Pre-calculus for undergraduate students enrolled in DeVry's technical education (Computer Gaming and Simulation) program, and using MyMathLab educational software to grade and evaluate student assignments.

Ottawa University, Phoenix, AZ.

Adjunct Faculty (Math & Liberal Arts), (March 2004 – Dec 2007)

Courses taught:
College Algebra, Pre-Calculus, Calculus (I, II, & III), Differential Equations, Linear Algebra, Introduction to Physical Science as an eight-week course.

Job responsibilities:

- To instruct and develop a curriculum for a diverse population of students in physics and mathematics classroom.
- To teach recitation sections for General Physics and University Physics classes for a diverse student population.
- To evaluate and measure the subject knowledge content of material taught in classroom, and to maintain student scholastic record through exams and assignments.

- Obtain student feedback related to my course instruction for each semester.
- Conduct a physics lab session (traditional as well as computer based) by applying Computer data acquisition tools such as Pasco Scientific Capstone program, CBL (Calculator-based Lab) or MBL (Microcomputer Based Lab) set-up in various kinds Physics experiments by use of computers equipped with Graphical Analysis program.
- Remain current with new teaching styles and trends introduced in physical sciences and math by attending conferences, faculty training and development workshops, and seminar.
- Maintain student appointment and meeting hours to provide course related assistance and advisement to students.
- Serve and participate in department, college and district-wide educational activities and committees.
- Teach math and physical science for students taking the course in a directed study format.
- To assist and help physics students with their development of problem-solving skills for various physics courses at college and university level. To conduct recitation sessions where there is direct interaction with physics students working on problems and homework.

Tutoring Experience:

SCOTTSDALE COMMUNITY COLLEGE, Scottsdale, AZ (August / 2005 – May / 2013)
Student Learning Facilitator (Level III) in Math and Physics at *Math & Science Center*

PHOENIX COLLEGE, Phoenix, AZ (August / 2000 – May / 2006)
Learning Center Specialist for Math and Science Center

RIO SALADO COLLEGE, Tempe, AZ (August / 1996 – May / 2004)
Block/Online Tutor in Math/Physics/Chemistry for Student Services

Job responsibilities:

- Assist and help students in understanding difficult concepts, and develop problem solving skills in topics like college algebra, calculus, trigonometry, introductory and advanced level physics classes. To tutor physics and math for students enrolled in health care, nursing and technical degree programs.

- Facilitate a TI-graphing calculator literacy session each semester for the students taking a college algebra class, as well as for math teachers revising and updating their graphing calculator knowledge.

Research Experience:

Biodesign Institute, Arizona State University (main campus), Tempe, AZ
Research Experience for Teachers Fellowship (June 2021 – August 2021)

I have participated in and completed a RET (Research Experience for Teachers) program for the summer 2021 for a period of total ten weeks (six weeks on campus).

Program description: To participate in a summer research program as a community college faculty by joining the CXFEL (Compact X-ray free electron laser) research group currently working CXFEL device use and its fabrication to engage in novel science

exploring the structure and dynamics of nature and materials. The research training program is to be conducted in-person as well virtually.

Project Name: *To commission a Focus Photoemission Electron Microscope and use it study a sample (Ag-Si chip) for its structural properties.*

RET Mentor: Dr. Siddharth Karkare
Assistant Prof. of Physics
College of Liberal Arts and Sciences,
ASU (Main campus)
Tempe, AZ

Center for Solid State Electronics Research, Arizona State University, Tempe, AZ
Research Experience for Teachers Fellowship (Aug 2014 – Feb 2015)

I have completed the summer research training program (seven weeks on campus) for high school and community college teachers in the field of nanoscience and technology. Job duties include developing instructional materials and lesson plans based on the information and data obtained from the research work in collaboration with graduate and doctoral students working at ASU's Nano-Fab facility, and to introduce those into the physics curriculum at high school and community college level. Final submission of project was presented at the seminar held at Georgia Institute of Technology, Atlanta, GA in Feb. 2015.

Project title: *Making Connections with Nanotechnology*.

UNIVERSITY OF JODHPUR, Department of Physics, Jodhpur, (Raj.), India.
Junior Research Fellow (Physics) (December /1994 – May /1995)

Project Title: *Fabrication and Study of Thin-Film Solar Cells using Organic Semiconductor Material.* (Funded by the Dept. of Science and Technology, New Delhi, India.)

Research Guide: Dr. G. D. Sharma
Assist Prof. of Physics
JNV University Jodhpur
Jodhpur, India

Job responsibilities:

- To assist the department faculty in conducting research work in photo conducting thin film solar cells, using organic photo-conducting dyes and compounds. To design thin films with coating of organic dyes and applying vacuum deposition technique to fabricate and prepare solar cells.
- Perform photo-conductivity tests on manufactured solar cells and to determine the work efficiency. To assist in publishing articles and journals related to the research project.

Education: **UNIVERSITY OF INDORE**, **(Devi Ahilya University)** Indore, India.

Master of Science degree in Physics (School of Physics, Dec. 1994)

Coursework:
Classical Mechanics, Quantum Mechanics, Nuclear Physics, Solid State Physics, Atomic Physics, Mathematical Physics, Plasma Physics, Laser Physics, Statistical Mechanics, Digital Electronics, and Statistics and Probability (*Interdisciplinary course*).

Math-related courses: Mathematical Physics (2 semester hours), Statistics (2 semester hours)

Thesis Work (Non-linear optics)**:**
Study of Optical Phase Conjugation phenomena in some non-linear optical solids.

Bachelor of Science degree in Physics (*Honors* Program, Dec. 1992)

Coursework:
Solid State Physics, Nuclear Physics, Electronics, Mathematical Physics, Numerical Methods and Analysis, and Quantum Mechanics.

Math-related courses: Mathematical Physics, Numerical Methods (20 semester hours)

UNIVERSITY OF ARIZONA, **Optical Sciences Center**, Tucson, AZ.
(January /2003 – May /2005)
Have completed additional graduate level course work in *Optics*, through the distance learning program, as a *non-degree* student.

Coursework:
Fourier Optics, Electromagnetic Waves, Optical Design and Instrumentation, Laser Physics, Diffraction and Interferometry, Radiometry and Optical System Aberrations.

Computer Experience:

- Microsoft Office and Windows Application
- Internet Explorer, Firefox, and other internet browsers
- Computer data acquisition tools such as Vernier, Pasco Scientific, Logger-Pro,
- Real-Time Physics, and Graphical Analysis, for laboratory physics.

Professional Certifications:

- **Arizona State Community College Teaching Certificate** (EDU 250 course taken).

Educational Activities and Certificate of Participation:

- I have participated in an Inquiry-Based Learning workshop (2 weeks) for math and physics faculty, using technology in the classroom, held at Mesa Community College, Mesa, AZ.
- Certificate obtained for participation in IN-VSEE (Interactive Nano-Visualization in Science and Engineering Education) workshop and the SPM (Scanning Probe Microscope) live operation for physical science and

engineering faculty held at Arizona State University, Tempe, AZ.

- I have completed three semester hours (86 contact hours) of *Modeling Workshop in electricity and magnetism,* (PHS 531, Methods of Physics Teaching) for high school and community college physics teachers, at Arizona State University, Tempe, AZ.
- Have attended and successfully completed the EDGE adjunct faculty workshop at Paradise Valley Community College, Phoenix AZ.
- Have participated in two-day webinar conducted by Pasco Scientific for "*Advanced Physics Apparatus and Experiments in Optical Physics*".

Volunteering and Service:

- Have participated as a Grand Awards Judge for the Regeneron ISEF (International Science and Engineering Fair) 2021 and have judged a total of six projects in Physics (Classical Mechanics), submitted by high school students from all over the world.
- Have conducted a three-hour physics workshop for high school students enrolled in ASU summer AVID camp.
- Have participated in ASU Open Door Event (in person as well as virtual) and developed a small video on preparing sling shot rockets guide and demonstration for elementary school children.

College Committee Services:

1) College Assessment Committee (Member): Aug. 2022 – Present
2) College Awards Committee (Member): Jan. 2022 – Present
3) CISA Awards Committee (Member): Jan. 2022 – Present
4) Barrett Honors Thesis Committee (Physics) Member: August 2023 - Present

Professional Membership: American Association of Physics Teachers (AAPT)

Honors/Awards: Have been recognized as an *Outstanding Adjunct Faculty* for ten years of service in teaching physics, professional development activities, creative and innovative learning strategies at Phoenix College.

References: Available upon request.