Perceiver

Perceive the World, Transform the Future

2024 Program Catalog

Perceiver

Perceive the World, Transform the Future

Perceiver Education Research Programs

Perceiver offers a wide variety of STEM-based research and program opportunities through our partnerships with professors and researchers from top universities. Our programs allow high school students the rare opportunity to gain valuable research skills while solving real-world challenges.

Perceiver's programs cover the most exciting topics in the fields of science, technology, engineering, medicine, and aerospace. Students participate directly in real laboratory settings, working hands-on with esteemed professors. These experiences facilitate the organic development of several practical skills, including critical thinking and problem-solving. Students also acquire the skills necessary to craft research papers and design presentations, all the while experiencing a versatile blend of in-person and hybrid work engagements. Research programs are offered on a rolling basis year-round, with unique opportunities in Spring, Summer, and Fall.

Elite Research Program

Our Elite Research Program promises an exceptional experience, featuring both onsite and hybrid research projects with real-world applications. Students collaborate directly with acclaimed university professors, enabling them to absorb knowledge from top experts and gain high-level skills. Students work in advanced college labs, engage in cutting-edge research, and benefit from 100% direct coaching by dedicated professors. This program ensures that interns not only contribute meaningfully to scientific advancements but also flourish in a dynamic educational setting, gaining tangible college-level experience, which is highly sought after by top colleges.

+ Research Paper Program

As an additional component of our Elite Research Program, students work with professors to draft a formal research paper and have the chance to publish their paper in a peer-reviewed scientific journal, cementing their contributions to the academic community. This unique combination of the program and research paper component sets our program apart, offering an extraordinary platform for students to make a lasting impact in their chosen field.

Voyager Program

Our Voyager Research Program offers a unique and transformative learning experience, similar in quality to our esteemed Elite Research Program. Here, students collaborate directly with Ph.D. candidates under the guidance of our distinguished professors, ensuring they gain a comprehensive understanding of the professor-designed program and research. With access to advanced college labs, cutting-edge research opportunities, and direct coaching from our dedicated staff, this program not only allows students to make significant contributions to scientific progress but also provides them with invaluable college-level experience sought after by top universities.

Our programs are designed to cater to a wide range of schedules, as they are offered year-round, spanning across the spring, summer, and fall seasons. Most of our programs run for seven weeks, with the final week dedicated to student presentations.

For further details about our programs, please contact Perceiver Education at:

admissions@usperceiver.com | +1 (909) 248-3024

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2024 RESEARCH PROGRAMS

Engineering & AI Programs

[E1] Engineering Applications of Magnetic Technology

[V1] Magnet-Based Engineering CLICK TO VIEW

[V2,E2] 3D Printing Flexible Electronics

[V3,E3] 3D Printing Structures with FDM Method

[E4] Machine Learning in Economics

[E5] Machine Learning in Systems Development

[V4] Innovation in Robotics

BioChem & Medical Programs

[E6] Recombinant Fluorescence Protein Production

[V5] Stem Cell-Based Regenerative Medicine

[V6] Advanced Stem Cell-Based Regenerative Medicine
[Flexible start date based on student enrollment]

[E7] Nanotechnology Application in Cancer Diagnosis

Aerospace & Earth Science Programs

[C3] Satellite-Based Earth Science Exploration and Analysis

[C4] Exoplanet Research and Data Analysis

[C5] Climate Change Solutions

Contact admissions for 2024 Spring availability and schedule

admissions@usperceiver.com | +1 (909) 248-3024

2024 Summer Program Dates

Program Code	Program Start Week
E1 | E2 | E3 | E4 | E5 | E7	6/24/2024
E6	7/01/2024
C1 | C2	6/24/2024
V1 | V2 | V3 | V5	6/24/2024
V4 | C3 | C4 | C5	6/10/2024

Program Timeframe

Program Code	Program Duration
E6 | V4 | V5	4 Weeks
E1 | E2 | E3 | E4 | E5 | E7 | V1 | V2 | V3	7 Weeks
C3 | C4 | C5	10 Weeks
C1 | C2	14 Weeks
V6	16 Weeks

PROGRAM LIST

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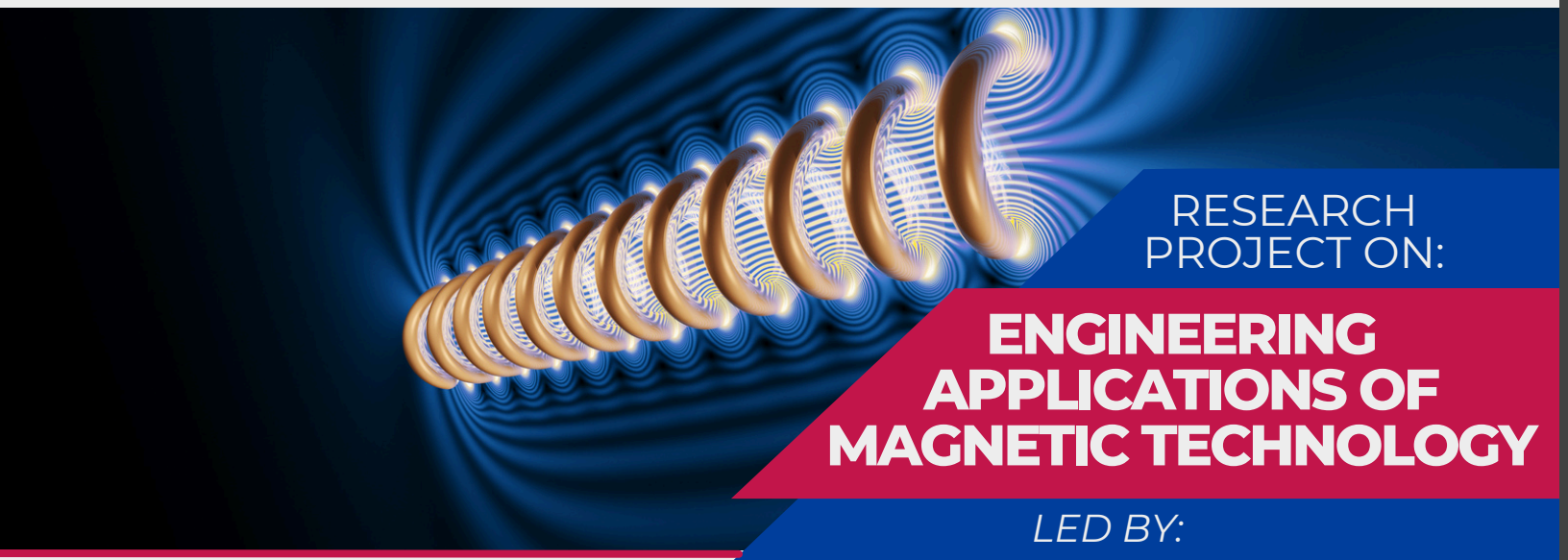
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

ENGINEERING APPLICATIONS OF MAGNETIC TECHNOLOGY

LED BY:

UCLA Professor, Department of Mechanical and Aerospace Engineering

Principal Investigator in The Nanosystems Engineering Research Center (ERC) for Translational Applications of Nanoscale Multiferroic Systems (TANMS)

ENGINEERING PROGRAM

ON-SITE PROGRAM

CUTTING-EDGE ENGINEERING RESEARCH

RELATED FIELDS: MATH, PHYSICS, ENGINEERING

LETTER OF RECOMMENDATION

- A Professor led On-site & Hybrid program focusing on the Engineering Applications of Magnetism
- 4-5 Students per program (Incoming 10th grade+)
- 7 Week Program Duration (7th Week for Presentations)
- College-Level Research
- Topics include:
  - Engineering Tools in Research
  - Cell Sorting
  - Magnetic Concepts and Applications
- Students Showcase Research to Experts

TERM: ····→ **SPRING, SUMMER**
LOCATION: ····→ **UCLA**
EXPECTED START: ····→ **6/24/2024**

www.perceivereducation.com

COURSE CODE: 24Su-E1

PROGRAM FEE: $8899

ELITE PROGRAM -
ENGINEERING APPLICATIONS OF MAGNETIC TECHNOLOGY

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Engineering and Research Concepts	Engineers create technology from basic principles and through a research process using modeling and numerical simulations. All of this is illustrated by cell capturing, releasing, and sorting.
2	Simulations Highlighting Magnetism and Cell Capturing + Release	Introduction to magnetism. Understanding electromagnets and permanent magnets and the magnetic fields they produce. Use numerical simulations to study the interaction between electromagnet fields and determine combined magnetic fields.
3	Magnetic Fields and Vector Tests	Introduce permanent magnets and concepts of shape anisotropy and magnetization vectors. Determine magnetic fields generated by a permanent magnet and the interaction between permanent magnets.
4	Magnetic Mechanism Creation	Create a mechanism using both electro and permanent magnets to create a switch that can turn on/off the magnetic field of a permanent magnet.
5	Magnetic Forces and Particle Dynamics	Formulas to calculate the magnet attraction forces. Calculate particle dynamics using Newton equations and forces from the magnet and drag fluid.
6	3D Cell Printing Simulation	Use simulations to determine optimal time switching for particle acceleration.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

MAGNET-BASED ENGINEERING

LED BY:

PhD Candidates Under the Direction of -

A UCLA Professor, Department of Mechanical and Aerospace Engineering

ENGINEERING PROGRAM

ON-SITE PROGRAM

CUTTING-EDGE ENGINEERING RESEARCH

RELATED FIELDS: MATH, PHYSICS, ENGINEERING

LETTER OF RECOMMENDATION

- PhD Candidate led On-site & Hybrid program focusing on the Engineering Applications of Magnetism
- 5-8 Students per program (Incoming 10th grade+)
- 7 Week Program Duration (7th Week for Presentations)
- Topics include:
  - Engineering Tools in Research
  - Cell Sorting
  - Magnetic Concepts and Applications
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **UCLA**
EXPECTED START: ····→ **6/24/2024**

www.perceivereducation.com

COURSE CODE: 24Su-V1

PROGRAM FEE: $4699

PROGRAM LIST

VOYAGER PROGRAM -
MAGNET-BASED ENGINEERING

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Engineering and Research Concepts	Engineers create technology from basic principles and through a research process using modeling and numerical simulations. All of this is illustrated by cell capturing, releasing, and sorting.
2	Simulations Highlighting Magnetism and Cell Capturing + Release	Introduction to magnetism. Understanding electromagnets and permanent magnets and the magnetic fields they produce. Use numerical simulations to study the interaction between electromagnet fields and determine combined magnetic fields.
3	Magnetic Fields and Vector Tests	Introduce permanent magnets and concepts of shape anisotropy and magnetization vectors. Determine magnetic fields generated by a permanent magnet and the interaction between permanent magnets.
4	Magnetic Mechanism Creation	Create a mechanism using both electro and permanent magnets to create a switch that can turn on/off the magnetic field of a permanent magnet.
5	Magnetic Forces and Particle Dynamics	Formulas to calculate the magnet attraction forces. Calculate particle dynamics using Newton equations and forces from the magnet and drag fluid.
6	3D Cell Printing Simulation	Use simulations to determine optimal time switching for particle acceleration.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

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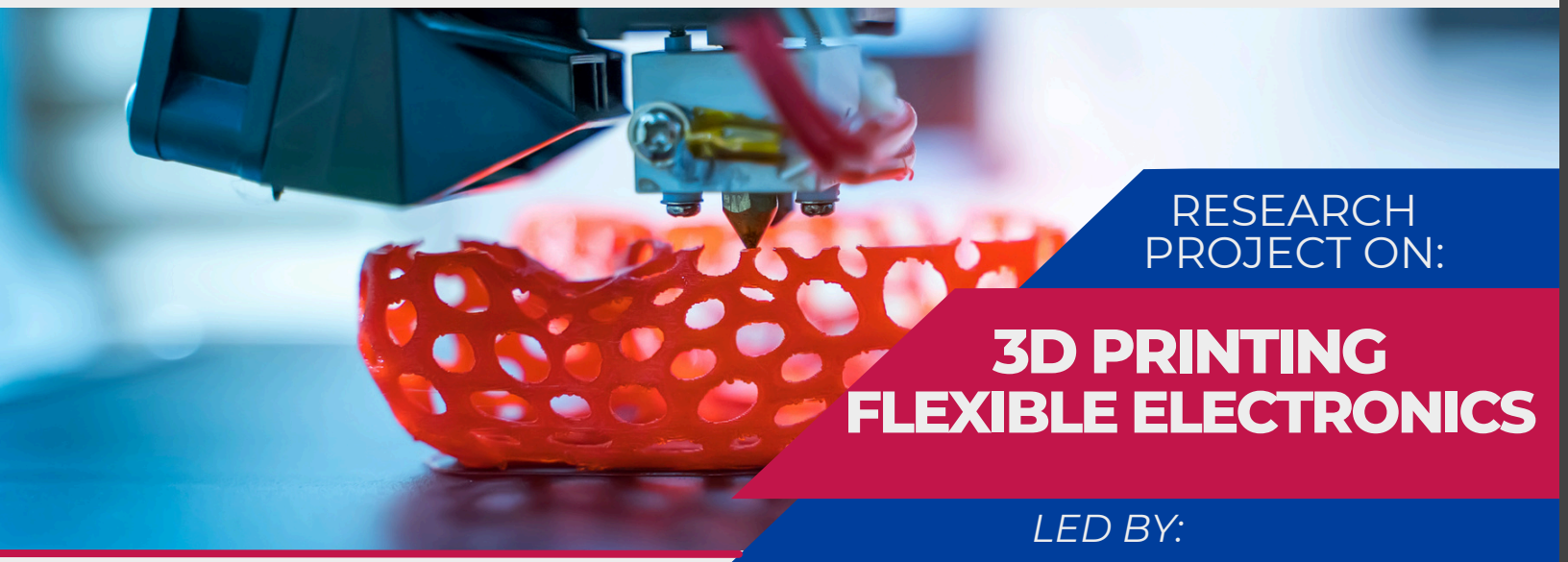
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

3D PRINTING FLEXIBLE ELECTRONICS

LED BY:

Professor - California State University, Long Beach, Department of Mechanical and Aerospace Engineering

ENGINEERING PROGRAM

ACCESS TO AN ADVANCED MATERIALS LAB

ENGINEERING RESEARCH IN FLEX ELECTRONICS

RELATED FIELDS: MATH, PHYSICS, ENGINEERING

LETTER OF RECOMMENDATION

- Fully Onsite program with hands-on work in 3D Design and Manufacturing
- 5 Students per program (Incoming 10th grade+)
- 7 Week Program (7th Week for Presentations)
- College-Level Research On:
  - The Field of Flexible Electronics
  - Device Design
  - Extrusion-Based 3D Printing
- Students Showcase Research to Experts

STANDARD	ADVANCED	COMPREHENSIVE
Section 1 Program (7weeks) $4699	*Section 2 Program (7weeks) $5399	Section 1 + 2 Programs (14weeks) $8899

*Students must take Section 1 first, to be eligible for Section 2

www.perceivereducation.com

COURSE CODES: 24 Su-V2, 24 Su-E2, 24 Su-C1 **LOCATION:** CSULB **EXPECTED START:** 6/24/2024

PROGRAM LIST

3D PRINTING FLEXIBLE ELECTRONICS

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to the Field of Flexible Electronics	Lab tour and introduction to the program. Learn about additive manufacturing and its importance in developing emerging devices.
2	Literature Review and Data-Analysis Skills Development	Conduct a comprehensive literature review for the chosen device/system. Explore data acquisition techniques and data preprocessing.
3	Device Design	Use design software to create the structure of the device. Learn geometry optimization and integration of flexible electronics.
4	Extrusion-based 3D Printing	Learn the basics of nanoparticle-based extrusion printing. Conduct post-processing on printed devices.
5	Device Measurement Using Data Acquisition Equipment	Learn the basics of LabVIEW for measuring various parameters such as voltage, temperature, resistance, etc. Measure the performance of the developed device (e.g., strain, pressure, humidity, and temperature sensors). Compare their performance with counterpart commercial devices.
6	Research Report and Program Summary	Write the final research report (approximately 3-5 pages). Conclude the program with a summary of achievements and lessons learned.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

3D PRINTING STRUCTURES WITH FDM METHOD

LED BY:

Professor - California State University, Long Beach, Department of Mechanical and Aerospace Engineering

ENGINEERING PROGRAM

- Fully Onsite program with hands-on work in 3D Design and Manufacturing
- 5 Students per program (Incoming 10th grade+)
- 7 Week Program (7th Week for Presentations)
- College-Level Research On:
  - Additive Manufacturing
  - Material Science
  - 3D CAD Design
- Students Showcase Research to Experts

ACCESS TO AN ADVANCED MATERIALS LAB

ENGINEERING RESEARCH IN FLEX ELECTRONICS

RELATED FIELDS: MATH, PHYSICS, ENGINEERING

LETTER OF RECOMMENDATION

STANDARD	ADVANCED	COMPREHENSIVE
Section 1 Program (7weeks) $4699	*Section 2 Program (7weeks) $5399	Section 1 + 2 Programs (14weeks) $8899

*Students must take Section 1 first, to be eligible for Section 2

www.perceivereducation.com

COURSE CODES: 24 Su-V3, 24 Su-E3, 24 Su-C2 **LOCATION:** CSULB **EXPECTED START:** 6/24/2024

PROGRAM LIST

3D PRINTING STRUCTURES WITH FDM METHOD

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Additive Manufacturing (AM)	Lab tour and introduction to the program. Learn about additive manufacturing and its importance in developing emerging devices.
2	Literature Review	Conduct a comprehensive literature review for the chosen device/system. Explore data acquisition techniques and data preprocessing.
3	3D CAD Design	Use design software for sketching, sketched features, reference geometry, design strategies, drawing and assemblies.
4	Create G-Code	Learn the basics of generating G-code for 3D printing and use various slicer softwares such as PrusaSlicer and Cura for generating G-Code.
5	Extrusion-based 3D Printing using the FDM Method	Learn the basics of FDM printers, printing parameters, and optimize them on the printing process and mechanical properties of the printed structures. Utilize 3D printing for developing parts/structures with real-world applications.
6	Research Report and Program Conclusion	Write the final research report (approximately 3-5 pages). Conclude the program with a summary of achievements and lessons learned.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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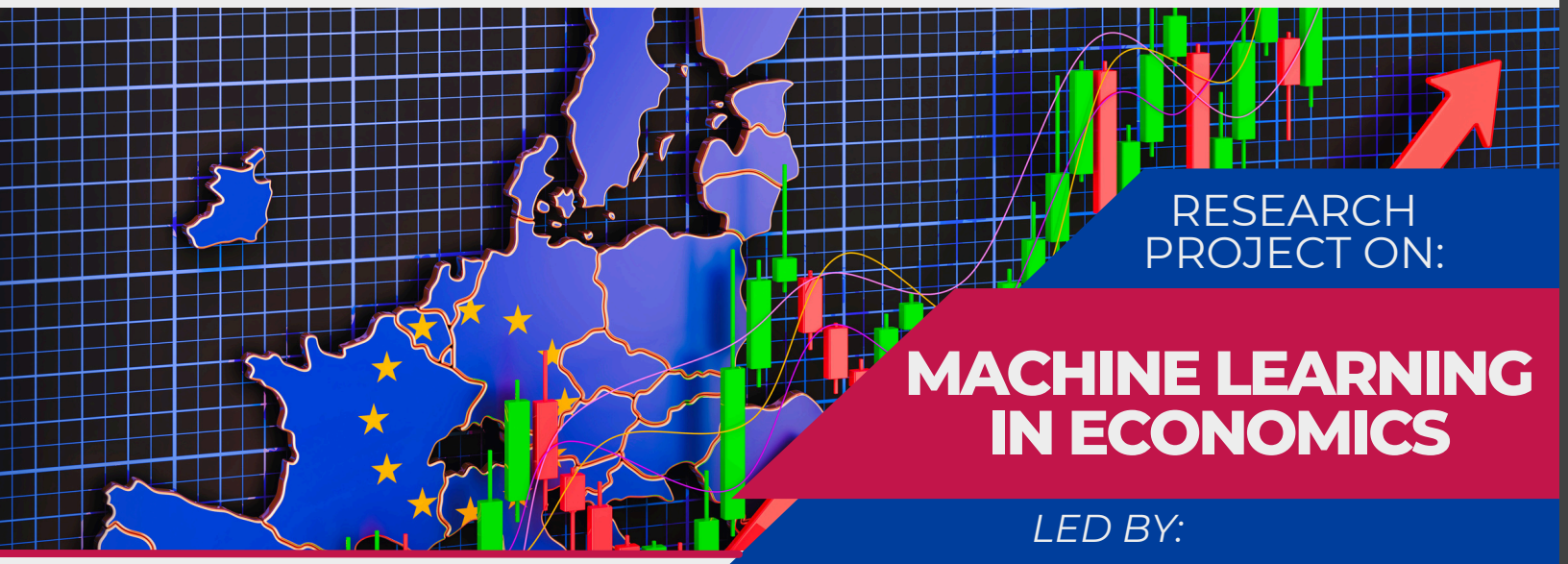
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

MACHINE LEARNING IN ECONOMICS

LED BY:

UCLA Professor, Statistics and Data Science Department and Biostatistics Department

Recipient of the National Security Innovation Network Award, National Science Foundation Award, Amazon Faculty Award, UCLA Faculty Award

TECHNOLOGY PROGRAM

AI ECONOMIC MECHANISMS

CUTTING-EDGE A.I. RESEARCH

RELATED FIELDS: MATH, PHYSICS, ENGINEERING

LETTER OF RECOMMENDATION

- A Professor led Hybrid program focusing on Machine Learning in Modern Economics
- 5 Students per program (Incoming 10th grade+)
- 7 Week Program Duration (7th Week for Presentations)
- College-Level Research
- Topics include:
  - Machine Learning Algorithms
  - Matching Systems
  - Mechanism Design
- Students Showcase Research to Experts

TERM: ····→ **SPRING, SUMMER**
LOCATION: ····→ **UCLA**
EXPECTED START: ····→ **6/24/2024**

www.perceivereducation.com

COURSE CODE: 24Su-E4

PROGRAM FEE: $8899

ELITE PROGRAM -
MACHINE LEARNING IN ECONOMICS

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Matching Algorithms	Exploration of matching algorithms, crucial in machine learning for tasks like dorm assignments and college admissions. Algorithms and their connection to machine learning.
2	Delving into Stable Matching	Exploration of classic models and the Nobel Prize-winning Gale-Shapley algorithm to understand how these methods create harmony in choices and decisions.
3	Building Advanced Matching System	Discover Double Machine Learning, a groundbreaking model reshaping economics. Analysis of Uber's algorithm for customer-driver matching.
4	The World of Auctions and Sponsored Searches	Learn about the key concepts of auctions and their strategic implications in the digital economy and modern business.
5	Exploring the VCG Mechanism	Understanding the VCG mechanism, a Nobel Prize-recognized algorithm that is fundamental to the revenue strategies of major tech companies.
6	Building a Revenue-Maximization Auction Model	Develop a revenue-maximization auction model. This hands-on experience will provide insights into how machine learning algorithms are used in bidding and auction strategies.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

MACHINE LEARNING IN SYSTEMS DEVELOPMENT

LED BY:

UCLA Professor, Department of Statistics and Data Science

Holds a joint appointment in the Halicioğlu Data Science Institute (HDSI) and the Department of Mathematics.

TECHNOLOGY PROGRAM

INDUSTRY LEADING AI DECISION SYSTEMS

CUTTING-EDGE A.I. RESEARCH

RELATED FIELDS: MATH, BUSINESS, ECONOMICS, COMPUTER SCIENCE

LETTER OF RECOMMENDATION

- A Professor led Hybrid program focusing on the Concept of A.I. Reinforcement Learning
- 5 Students per program (Incoming 10th grade+)
- 7 Week Program Duration (7th Week for Presentations)
- College-Level Research
- Topics include:
  - Machine Learning Algorithms
  - Recommendation System Principles
  - System Design
- Students Showcase Research to Experts

TERM: ····→ **SPRING, SUMMER**
LOCATION: ····→ **UCLA**
EXPECTED START: ····→ **6/24/2024**

www.perceivereducation.com

COURSE CODE: 24Su-E5

PROGRAM FEE: $8899

ELITE PROGRAM -
MACHINE LEARNING IN SYSTEMS DEVELOPMENT

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Reinforcement Learning (RL)	Reinforcement learning and recommendation systems application in modern business.
2	Designing a Recommendation System for Amazon	Practical application of RL through recommendation engines for Amazon and Netflix. Transform abstract scenarios into the RL framework, bridging the gap between theory and real-world implementation.
3	Maximizing Profit through Rewards	Understand how reward functions are the key to maximizing profit for companies. Delve into the nuances of reward design and discuss how it influences the engine's performance.
4	Algorithm Exploration	Create a simplified online advertising simulation, allowing students to experiment with a simple algorithm to see how it performs.
5	Common Recommendation Strategies	Introduction to some commonly used algorithms in recommendation systems, including Upper Confidence Interval, Thompson Sampling, and Epsilon-Greedy.
6	Building Your Recommendation Engine	Students will build a recommendation engine using concepts learned in class.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

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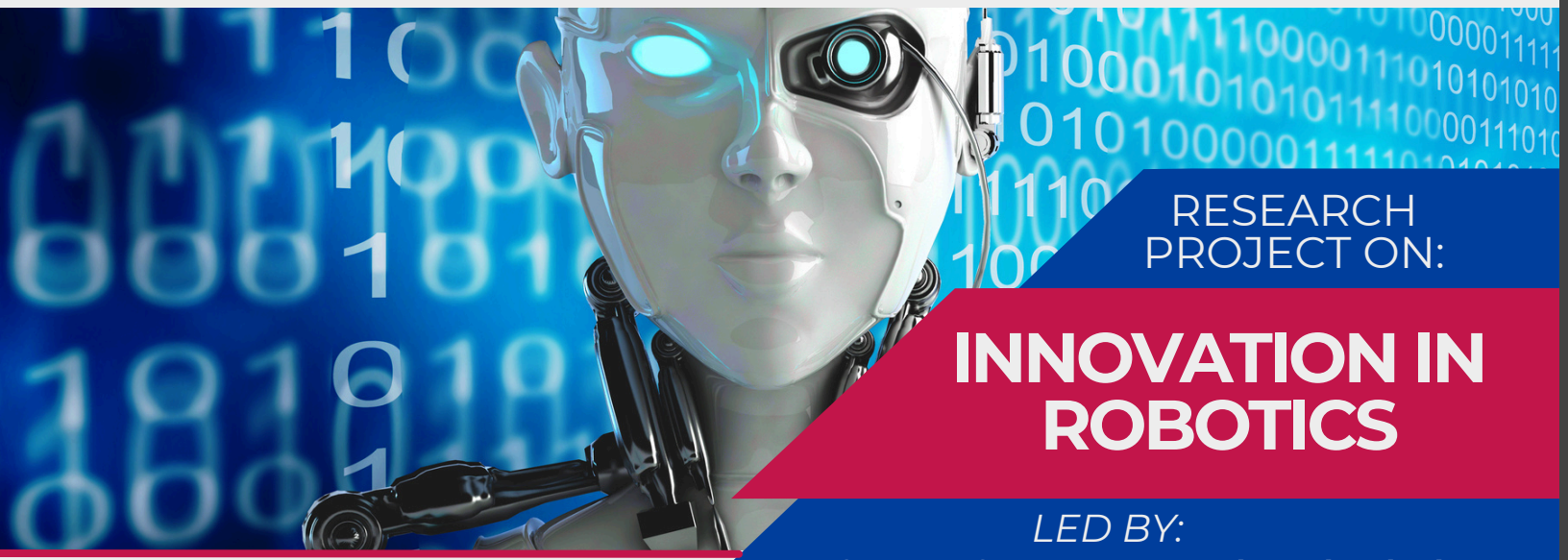
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

INNOVATION IN ROBOTICS

LED BY:

Professor of Aerospace and Mechanical Engineering, University of Southern California

Focused on dynamic robotics control and optimization, with innovative research on the ATRIAS and MIT Cheetah 3 robots

ROBOTICS PROGRAM

ON-SITE ROBOTICS EXPERIENCE

CUTTING-EDGE ROBOTICS RESEARCH

RELATED FIELDS: MATH, PHYSICS, ENGINEERING

LETTER OF RECOMMENDATION

- A Professor led On-site & Hybrid Program focusing on the Latest Innovations in Robotics
- 12 Students per program (Incoming 10th grade+)
- 4 Week Program Duration (4th Week for Presentations)
- College-Level Research
- Topics include:
  - Robotic Dynamics
  - Systems
  - Implementation of Controls
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **USC**
PROGRAM START: ····→ **6/10/2024**

www.perceivereducation.com

COURSE CODE: 24Su-V4

PROGRAM FEE: $6499

PROGRAM LIST

VOYAGER PROGRAM -
INNOVATION IN ROBOTICS

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Robotics	Introduction to robotics, robotics research, modern concepts in the field.
2	Robot Dynamics	Students will learn how to formulate robot dynamics to represent complex physics of robotic systems.
3	Control Systems & Simulations	Introduction to control system, and state-of-the-art robot control algorithms. Students will also learn how to implement these algorithms in simulations.
4	Robot Control Implementation and Experiments	System integration and control implementation for the complex robotic systems that students built the previous week. Students will learn and observe how the control algorithms from the course are transferred to the advanced robotic systems.
5	Final Group Presentations	Students will present their projects in front of a team of experts through collaborative designs and presentations.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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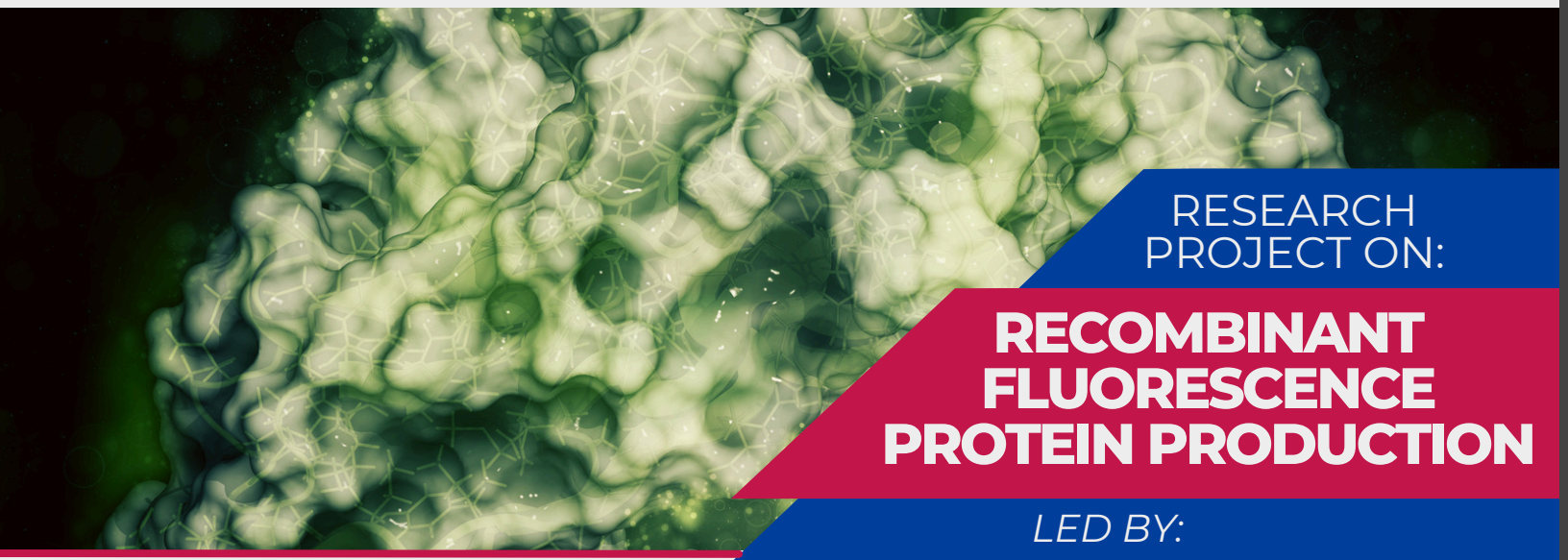
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

RECOMBINANT FLUORESCENCE PROTEIN PRODUCTION

BIOCHEM PROGRAM

LED BY:

Bioengineering Research Professor - University of California, Riverside

Advanced Medical Researcher focused on Biomaterials, Regenerative Medicine, Molecular and Cellular Engineering

UNIQUE BIOLAB ON-SITE/HYBRID PROGRAM

CUTTING-EDGE BIOMEDICAL RESEARCH

LAB TECHNOLOGY IMMERSION

RELATED FIELDS: BIOLOGY, CHEMISTRY, BIOENGINEERING

- PhD Candidate led On-site & Hybrid program focusing on Cancer Research with Real-World Applications
- 12 Students per program (Age 16+)
- 5 Week Program Duration (5th Week for Presentations)
- Fully Immersive Biolab Project
- Topics include:
  - Molecular Engineering
  - DNA Transformation
  - Fluorescence Determination
  - FRET Assay
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **UCR**
PROGRAM STARTS: ····→ **7/1/2024**

www.perceivereducation.com

COURSE CODE: 24Su-E6

PROGRAM FEE: $6499

ELITE PROGRAM -

RECOMBINANT FLUORESCENCE PROTEIN PRODUCTION

WEEK	ACTIVITIES	DESCRIPTION
1	DNA Transformation into Plasmid Production Bacterial Cells	Bacterial Transformation: Electroporation and Bioinformatics analysis of cloned genes. Verify and compare the sequencing result of clones with sequences from NCBI database.
2	Plasmid Purification and Characterizations	Plasmid DNA Purification and gene validation. Purify plasmid DNA from bacterial cells by mini-prep, validate the genes by restriction enzyme digestion, PCR and submit for sequencing.
3	Fluorescence Protein Purification	Fluorescence protein purification involves isolating and refining fluorescent proteins from biological samples for applications in imaging, research, and biotechnology.
4	Fluorescent Protein Characterizations and FRET Assay	Fluorescence protein identification by imaging and spectroscopy, and Fluorescence Energy Transfer Assay.
5	Final Group Presentations	Students will present projects and receive constructive feedback, ensuring that their final presentations are impactful and well-polished.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

STEM CELL-BASED REGENERATIVE MEDICINE

LED BY:

Tenured Biomedical Research Professor, Western University of Health Sciences

20 years experience and 40 published papers in research on tumor and stem cell signaling channels, stem cell therapy, and protein genetic engineering.

MEDICAL PROGRAM

MODERN MEDICAL TECHNIQUES

BIOMEDICAL EXPERIMENTAL SKILLS

RELATED FIELDS: CHEMISTRY, MEDICAL, BIOLOGY

LETTER OF RECOMMENDATION

- A Professor led Hybrid program focusing on the latest Stem Cell Research Developments
- 10 Students per program (Incoming 10th grade+)
- 4 Week Program Duration
- Topics include:
  - Nobel Prize Winning Stem Cell Research Methodology
  - Stem Cell-Based Drug Screening
  - Key Experimental Techniques in Biomedicine
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **WESTERN U**
EXPECTED START: ····→ **6/24/2024**

www.perceivereducation.com

COURSE CODE: 24Su-V5

PROGRAM FEE: $4899

PROGRAM LIST

VOYAGER PROGRAM -
STEM CELL-BASED REGENERATIVE MEDICINE

WEEKS	ACTIVITIES	DESCRIPTION
1	Introduction to Stem Cells	Instructors will introduce the basic concepts of Stem Cells and assign research papers for students to read.
2	Induced Pluripotent Stem (iPS) Cells and their application in regenerative medicine	Students will learn iPS cells application in 1) disease modeling, 2) disease treatment and, 3) drug discovery. Instructors will assess students' research ability in understanding papers, and discuss their potential research projects.
3	Multipotent Stem Cells for Disease Treatments	Students will learn about another important type of stem cells, multipotent stem cells, in disease treatments. Students will continue to explore their interested research topics in stem cells.
4	Presentation Preparation and Discussion with students about their project outcomes	Instructors will discuss research project outcomes with students and provide feedback for improvements. Students will complete their projects and prepare to present their reports to the professor.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

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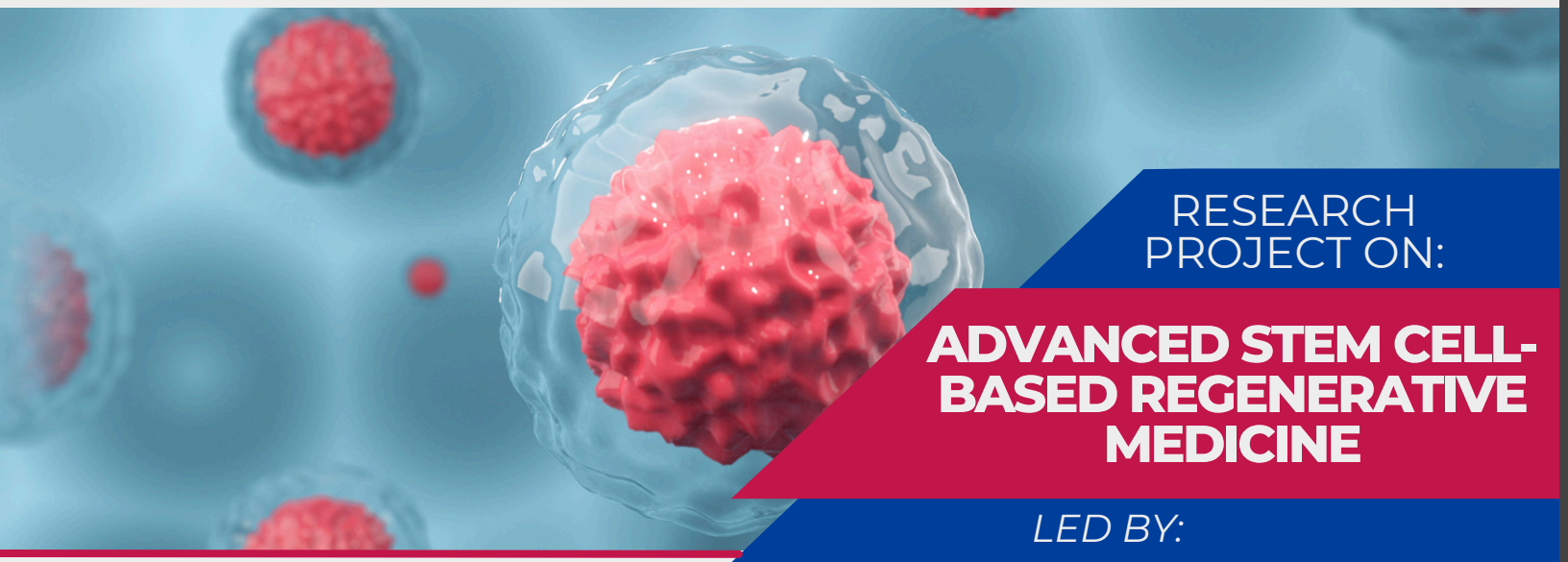
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

ADVANCED STEM CELL-BASED REGENERATIVE MEDICINE

LED BY:

Tenured Biomedical Research Professor, Western University of Health Sciences

20 years experience and 40 published papers in research on tumor and stem cell signaling channels, stem cell therapy, and protein genetic engineering.

MEDICAL PROGRAM + RESEARCH PAPER

RELATED FIELDS: CHEMISTRY, MEDICAL, BIOLOGY

BIOMEDICAL EXPERIMENTAL SKILLS

LETTER OF RECOMMENDATION

SCIENTIFIC RESEARCH PAPER WITH POTENTIAL FOR PUBLICATION

- A Professor led Hybrid program focusing on the latest Stem Cell Research Developments
- 2 Students per program section (Incoming 10th grade+)
- 16 Week Program Duration
- Professor Collaborates with Students to Draft a Formal Scientific Research Paper Aiming for Publication
- Topics include:
  - Nobel Prize Winning Stem Cell Research Methodology
  - Stem Cell-Based Drug Screening
  - Key Experimental Techniques in Biomedicine
- Students Showcase Research to Experts

TERM: ROLLING START
LOCATION: WESTERN U
EXPECTED START: TBA

www.perceivereducation.com

COURSE CODE: 24Su-V6

PROGRAM FEE: $10499

PROGRAM LIST

VOYAGER PROGRAM+RESEARCH PAPER

ADVANCED STEM CELL-BASED REGENERATIVE MEDICINE

WEEKS	ACTIVITIES	DESCRIPTION
1	Introduction to Stem Cells	Instructors will introduce the basic concepts of Stem Cells and assign research papers for students to read.
2	Induced Pluripotent Stem (iPS) Cells and their application in regenerative medicine	Students will learn iPS cells application in 1) disease modeling, 2) disease treatment and, 3) drug discovery. Instructors will discuss students' potential research projects.
3	Multipotent Stem Cells for Disease Treatments	Students will learn about another important type of stem cells, multipotent stem cells, in disease treatments. Students will continue to explore their interested research topics in stem cells.
4	Lab Research	Students will visit a bio-lab and learn the basic techniques for biological research.
5	Discussion with students about their project outcomes	Instructors will discuss research project outcomes with students and provide feedback for improvements.
6	Presentation Preparation	Students prepare final presentations before beginning the research paper.
7-16	Research Paper	With the professor's guidance, students will draft and submit for publishing a formal scientific research paper on the course topics.

PROGRAM DELIVERABLES

- SCIENTIFIC RESEARCH PAPER WITH POTENTIAL FOR PUBLICATION
- LAB CERTIFICATE SIGNED BY THE DEAN
- POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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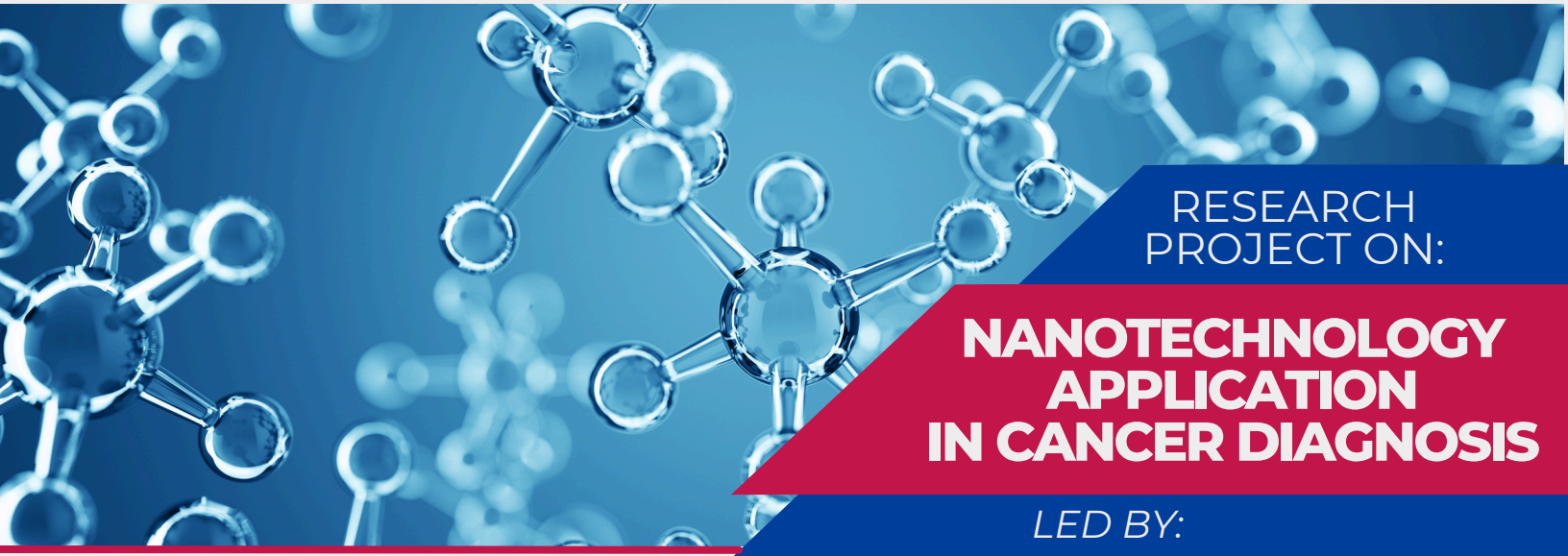
STUDENT RESEARCH PROGRAMS



RESEARCH PROJECT ON:

NANOTECHNOLOGY APPLICATION IN CANCER DIAGNOSIS

LED BY:

Professor of Molecular & Medical Pharmacology, David Geffen School of Medicine at UCLA

BIOCHEM PROGRAM

UNIQUE MEDICAL LAB ON-SITE/HYBRID PROGRAM

CUTTING-EDGE BIOMEDICAL RESEARCH

LAB TECHNOLOGY IMMERSION

RELATED FIELDS: CHEMISTRY, BIOENGINEERING, MEDICAL, BIOLOGY

- Fully On-site program focusing on Cancer Research with Real-World Applications
- 6 Students per program (Age 16+)
- 7 Week Program Duration (7th Week for Presentations)
- College-Level Research
- Topics include:
  - Modern Biomedical Research
  - Techniques of Cancer Diagnosis
  - Detection and Analysis of Tumor Cells
  - Proprietary Nanotechnology Platforms
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **UCLA**
EXPECTED START: ····→ **6/24/2024**

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COURSE CODE: 24Su-E7

PROGRAM FEE: $11899

ELITE PROGRAM -

NANOTECHNOLOGY APPLICATION IN CANCER DIAGNOSIS

WEEK	ACTIVITIES	DESCRIPTION
1	Introduction to Contemporary Biomedical Research	A comprehensive introduction into the world of contemporary biomedical research and the history of cancer therapeutics.
2	Case Studies on Immunostaining for Cancer Diagnosis	Students will witness the tangible impact of immunostaining in real-world cancer treatment scenarios.
3	Utilize Digital PCR for Cancer Diagnosis	Learn about the many intricacies of digital PCR, a cutting-edge technique pivotal in cancer diagnosis.
4	Nanotechnology for Detection and Analysis of Circulating Tumor Cells	Students will learn about nanotechnology's potential, exploring its clinical applications and discussing avenues for commercialization. Through a dynamic combination of theory and practical examples, students will be empowered to envision the future of tumor cell detection and analysis.
5	On-Site Rehearsal and Mentoring on the UCLA campus	Students will work to refine their projects and receive constructive feedback, ensuring that their final presentations are impactful and well-polished.
6	Final Report/Presentation Draft	Culminating the program's journey, participants will draft their projects for a final presentation to the scientific panel.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

SATELLITE-BASED EARTH SCIENCE EXPLORATION AND ANALYSIS

AEROSPACE PROGRAM

LED BY:

Principal Scientist, Jet Propulsion Laboratory, California Institute of Technology

Recipient of Edward Stone Award and two NASA Exceptional Achievement Medals for his leadership and innovation in scientific research.

ON-SITE PROGRAM

CUTTING-EDGE SATELLITE DATA ANALYSIS

RELATED FIELDS: MATH, PHYSICS, AEROSPACE, EARTH SCIENCE

LETTER OF RECOMMENDATION

- A Professor led On-site & Hybrid program focusing on Satellite Data Analysis in Earth Science
- 3-5 Students per program (Incoming 10th grade+)
- 10 Week Program Duration
- College-Level Research
- Topics include:
  - Analysis of Satellite Imagery
  - Weather Pattern Observation
  - Ocean Currents
  - Land Change Analysis
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **CALTECH**
EXPECTED START: ····→ **6/10/2024**

www.perceivereducation.com

COURSE CODE: 24Su-C3

CONTACT FOR PRICING

PROGRAM LIST

ELITE PROGRAM -

SATELLITE-BASED EARTH SCIENCE EXPLORATION AND ANALYSIS

WEEK	ACTIVITIES	DESCRIPTION
1	Orientation and Data Setup	Determine the programming language for data analysis. Download NASA Earth science satellite observational data relevant to the research topics.
2-4	Literature Review and Data-Analysis Skills Development	Explore data acquisition techniques, data preprocessing, and quality control. Develop skills in using programming languages for data analysis.
5-7	Data Analysis and Interpretation	Apply statistical analysis techniques to satellite data. Identifying patterns and trends within the data.
8-9	Research Analysis and Conclusion	Finalize data analysis and interpretation for each research topic. Write the final research report and prepare materials for the final presentation.
10	Presentation and Program Conclusion	Each student presents their research findings in a 20-minute seminar. Conclude the program with a summary of achievements and lessons learned.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

EXOPLANET RESEARCH AND DATA ANALYSIS

LED BY:

Principal Scientist, Jet Propulsion Laboratory, California Institute of Technology

Recipient of Edward Stone Award and two NASA Exceptional Achievement Medals for his leadership and innovation in scientific research.

AEROSPACE PROGRAM

ON-SITE PROGRAM

SPACE EXPLORATION

RELATED FIELDS: MATH, PHYSICS, AEROSPACE

LETTER OF RECOMMENDATION

- A Professor led On-site & Hybrid program on Space Mission and Telescope Data for Exoplanet Discovery
- 3-5 Students per program (Incoming 10th grade+)
- 10 Week Program Duration
- College-Level Research
- Topics include:
  - Exoplanet Atmospheres and Orbits
  - Potential for Exoplanets to Support Life
  - Telescope Data Analysis
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **CALTECH**
EXPECTED START: ····→ **6/10/2024**

www.perceivereducation.com

COURSE CODE: 24Su-C4

CONTACT FOR PRICING

PROGRAM LIST

ELITE PROGRAM -
EXOPLANET RESEARCH AND DATA ANALYSIS

WEEK	ACTIVITIES	DESCRIPTION
1	Orientation and Research Topic Selection	Introduction to the field of exoplanet research. Each student selects a specific research topic within the exoplanet domain.
2-3	Literature Review and Data Gathering	Conduct an extensive literature review related to the chosen research topics. Learn about available exoplanet databases and data sources.
4-5	Data Preprocessing and Quality Control	Explore data preprocessing techniques specific to exoplanet data. Implement quality control measures for acquired data. Start cleaning and organizing the datasets.
6-8	Data Analysis and Research	Apply data analysis techniques to understand exoplanet characteristics. Create preliminary models, calculations, and visualizations.
9	Advanced Topics and Research Refinement	Refine research questions and approaches based on insights gained and write the final research report.
10	Research Presentation and Conclusion	Each student presents their research findings in a 20-minute seminar. Conclude the program with a summary of achievements and future directions in exoplanet research.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION

PROGRAM LIST

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STUDENT RESEARCH PROGRAMS

RESEARCH PROJECT ON:

CLIMATE CHANGE SOLUTIONS

ENVIRONMENTAL SCIENCE PROGRAM

LED BY:

Principal Scientist, Jet Propulsion Laboratory, California Institute of Technology

Recipient of Edward Stone Award and two NASA Exceptional Achievement Medals for his leadership and innovation in scientific research.

ON-SITE PROGRAM

CUTTING-EDGE SUSTAINABILITY RESEARCH

RELATED FIELDS: MATH, AEROSPACE, ENVIRONMENTAL SCIENCE

LETTER OF RECOMMENDATION

- A Professor led On-site & Hybrid program on Mitigating and Adapting to Climate Change
- 3-5 Students per program (Incoming 10th grade+)
- 10 Week Program Duration
- College-Level Research
- Topics include:
  - Renewable Energy Sources
  - Carbon Capture Technologies
  - Sustainable Agriculture Practices
- Students Showcase Research to Experts

TERM: ····→ **SUMMER**
LOCATION: ····→ **CALTECH**
EXPECTED START: ····→ **6/10/2024**

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COURSE CODE: 24Su-C5

CONTACT FOR PRICING

ELITE PROGRAM -
CLIMATE CHANGE SOLUTIONS

WEEK	ACTIVITIES	DESCRIPTION
1	Orientation and Program Overview	Introduction to the importance of addressing climate change.
2-3	Understanding Climate Change	Explore the science behind climate change and its impacts. Identify challenges and opportunities for mitigation and adaptation.
4-5	Sustainable Solutions	Explore renewable energy sources, energy efficiency, and sustainable transportation. Guest speakers and case studies on successful sustainability projects.
6-7	Climate Policy and Advocacy	Discuss the role of policy and international agreements in addressing climate change. Explore advocacy and lobbying strategies for climate action.
8-9	Sustainable Projects and Action Plans	Hands-on sustainability projects and simulations. Develop practical action plans for addressing climate change at the local level.
10	Final Presentations and Program Conclusion	Each participant presents their sustainability project or action plan. Conclude the program with a discussion on continued involvement in climate solutions.

PROGRAM DELIVERABLES

PROGRAM CERTIFICATE

POTENTIAL PROFESSOR LETTER OF RECOMMENDATION