One Lights Edu.

Graduate Seminar Program

INTRODUCTION

Graduate Seminar Program (GSP) is a high-level academic program that provides **in-depth study, discussion and comprehension of interested STEM subjects/fields** based on academic researches and in the form of **High-Level Seminars in universities**.

Different from ordinary university courses in a knowledge-conveying style, GSP are held mostly based on **real cases and academic papers**, and includes a large number of **study researching, reading and discussion**, sorting out the **history and logic** of the field, and learning the **traditional and cutting-edge technologies** in the areas of profession.

FACTS ABOUT GSP

GSP IS NOT ABOUT PAYING TO PUBLISH PAPERS

but genuinely learning for self-improvement, and academic knowledge and skill enhancement

A version of **Graduate/Doctoral Seminar Courses** with reduced workload and difficulty

Case studies beyond textbooks to **accumulate professional knowledge** in the field

Its outcome lays the groundwork for university applications and interviews, major selection and application to graduate schools, laboratory applications, academic publications, and more

TWO TYPES OF COURSES

1) In-depth Research and Discussion of A Specific Subjects/Fields

Sample Topic: “The History of CRISPR and its Modern Technologies & Applications”

2) Extensive Intro in Various Areas of A Specific Subjects/Fields

Sample Topic: “Introduction to Synthetic Biology and Gene Editing Techniques"

COURSE OUTLINE

Pre-class Assignments

- Background Literature Reading
- Literature Analysis

In-Class Interaction

Active Participation of In-Class Discussions and Tasks

In-Class Projects

Projects to improve Academic Reading & Writing, Academic Presentation skill, Critical Thinking, Leadership, and Teamwork

Final Project

- Group-selected Topic
- Finish an Academic Papers / PPT Presentation/Poster presentation/etc.

TARGET STUDENT POPULATION

High School Graduates and Qualified HS students who:

- want to explore a wide range studies/fields of their major in college
- are interested in a specific field of study and want to explore more
- want to transit from high school to college curriculum

College Students who are:

- exploring specific future major tracks for Graduate School/work
- interested in specific fields of their major and want to explore more

We welcome all other students who are interested in the program to join us!

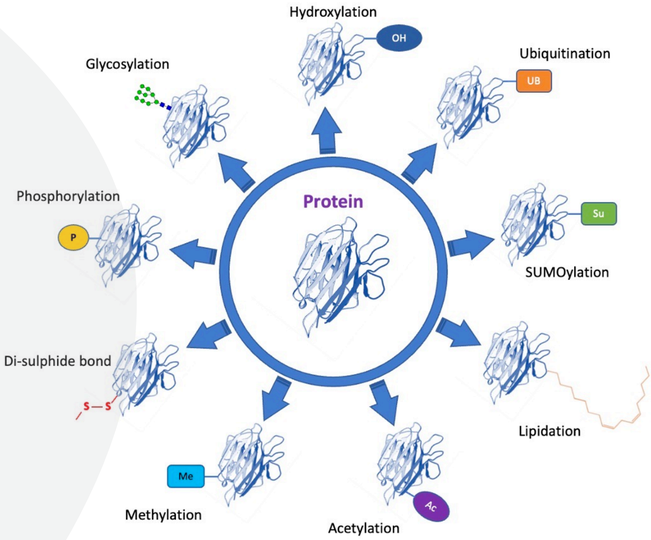
TOPIC 1

“Beyond the Central Dogma: Post-Translational Modification of Proteins”

Present by Yalikunjiang Aizezi

The p53 protein is a tumor suppressor that plays a crucial role in maintaining genomic stability by regulating cell cycle arrest, DNA repair, and apoptosis under stress conditions. Dysregulation or mutation of p53 protein often leads to uncontrolled cell proliferation, which eventually results in tumorigenesis or cancer. Post-translational modifications (PTMs) serve as important regulatory components of protein functions, and it increases the complexity of the proteome beyond the central dogma. PTMs of p53, such as phosphorylation, acetylation, ubiquitination, and methylation, are important for regulating its activity and stability.

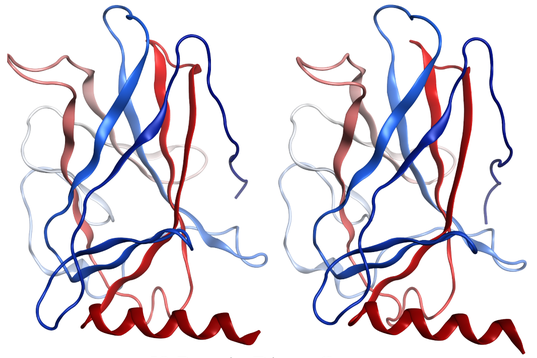
In this course, we aim to introduce post-translational modifications (PTMs) as another layer of regulation beyond transcription and translation, to influence cellular homeostasis. Using p53 as an example, we will help students appreciate the mechanisms through which protein functions could be regulated by PTMs.



Types of Post Translational Modification [NPS]

Course Objectives:

- Obtain a basic understanding about the role of post-translational modification in the protein functions regulation;
- Discuss the important role of p53 tumor suppressor protein in cancer development and how p53 function could be regulated by various types of PTMs;
- Conduct research on a scientific question related to the topic and report the findings through academic presentations.



p53 Protein Dimer Structure

TOPIC 2

“The Complex Genome: From Structure to Function”

Present by Diwen(Steven) Gan

In eukaryotes, the genome is extensively compacted inside the nucleus, hierarchically organized at a multiscale of structural units. One of the most critical roles of these delicately regulated structures is the control of transcriptional dynamics. Transcriptional regulations have been recognized as the primary regulatory mechanisms coordinating cellular activities, responses, cell type and fate determinations. No doubt, regulations on transcription are hugely achieved by changes in regulatory factors and structural configuration. Yet, with more than two hundred years of study on the genome, we are just starting to realize the complexity lies within …

The course is designed for students to learn:

1) Basic knowledge of the genomic structure and its role in transcriptional regulation.
2) Cutting-edge techniques and bioinformatics used in the field.
3) Practical experience in bioinformatic analysis.
4) Frontier research principles and methodology.
5) Mysteries and dilemmas remained unsolved.

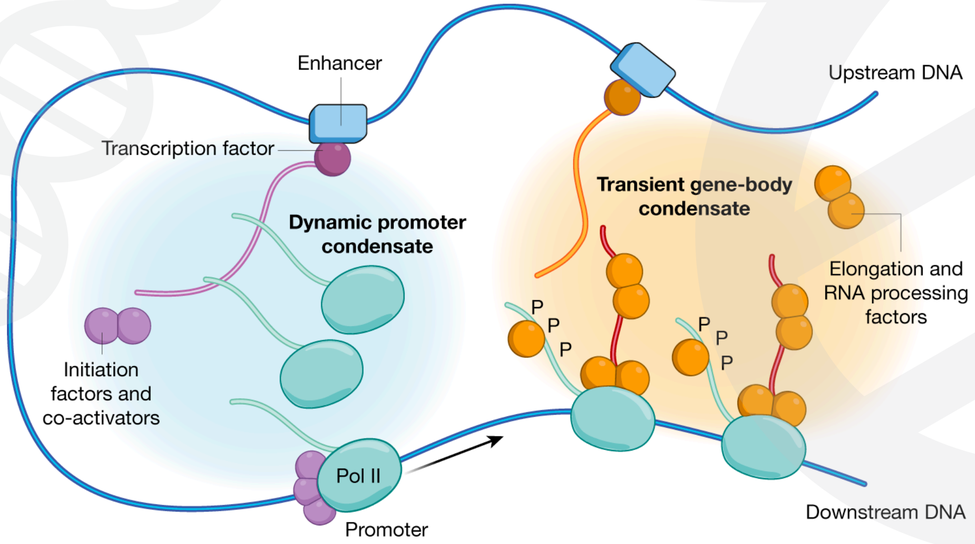


Figure: Condensate-based model of Pol II transcription [Cramer, 2019]

2023 COURSE SCHEDULE

Summer Session 1

Jun 13th - Jul 22nd

Summer Session 2

Jul 25th - Aug 29th

Regular Classes are held on:

Tuesday and Saturday

Class Time:

Beijing Time: 10:00am - 12:00pm

New York Time (EST): 10:00pm - 12:00am

Los Angeles Time (PST): 7:00pm - 9:00pm

WHAT YOU WILL GET

Creativity
Critical Thinking
Leadership
Teamwork

Advanced Academic Seminar in American universities with English Teaching Environment

- **Two Teaching Assistants** per Course
- **Office Hours and Feedbacks** are Provided per Class

Introduce Renowned Professors and Laboratories in the field
Assist Your Laboratory Application and Graduate School Selection!

Hard Power
Every class is a Great Opportunity to Reserve Knowledge in Your Profession

Soft Power
Improve Academic Reading & Writing and Presentation

Collision of Thoughts and Brainstorming with Outstanding Peers and Mentors Could Help You **Find Your Future Research Directions and Topics!**

In-depth Learning of Fields/Technologies and Their **Most Cutting-edge Application**

Enhanced Professional Knowledge Reserve Will Satisfy Your Curiosity, and **Support Your Outstanding College Essay/ Application/Interview/Work Opportunity!**

MENTORS

Yalikunjiang Aizezi (He/Him)

Graduated from the Southern University of Science and Technology (SUSTech)

Is currently pursuing a Ph.D. in the Department of Biology at Stanford University

Publications: Journal Cover Featured First-author paper in the *Journal of Experimental Botany* (IF = 7, Chinese Academy of Sciences Q1); three co-authored papers in *PNAS*/*Cell Reports*/etc.

Research focuses: understanding the impact of post-translational modifications (PTMs) on protein function using genetics, biochemistry, and proteomics.

Diwen (Steven) Gan (He/Him)

Graduated from the Southern University of Science and Technology

Is currently pursuing a Ph.D. in Biological Sciences at the Salk Institute – the University of California, San Diego (UCSD).

Publications: Four Co-authored papers in *Nature Communications*/*Molecular Systems Biology*/etc.

Research focuses: investigating the molecular mechanisms of estrogen receptor-regulated enhancers and transcriptional initiation using molecular biology, transcriptomics, epigenomics, and single-molecule imaging techniques.

TEACHING FACULTY

Mentors and teaching assistants in One Lights Edu. are from top universities and research institutes around the world.

We are having more outstanding alumni and renowned professors joining our team in the near future!

UC San Diego

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

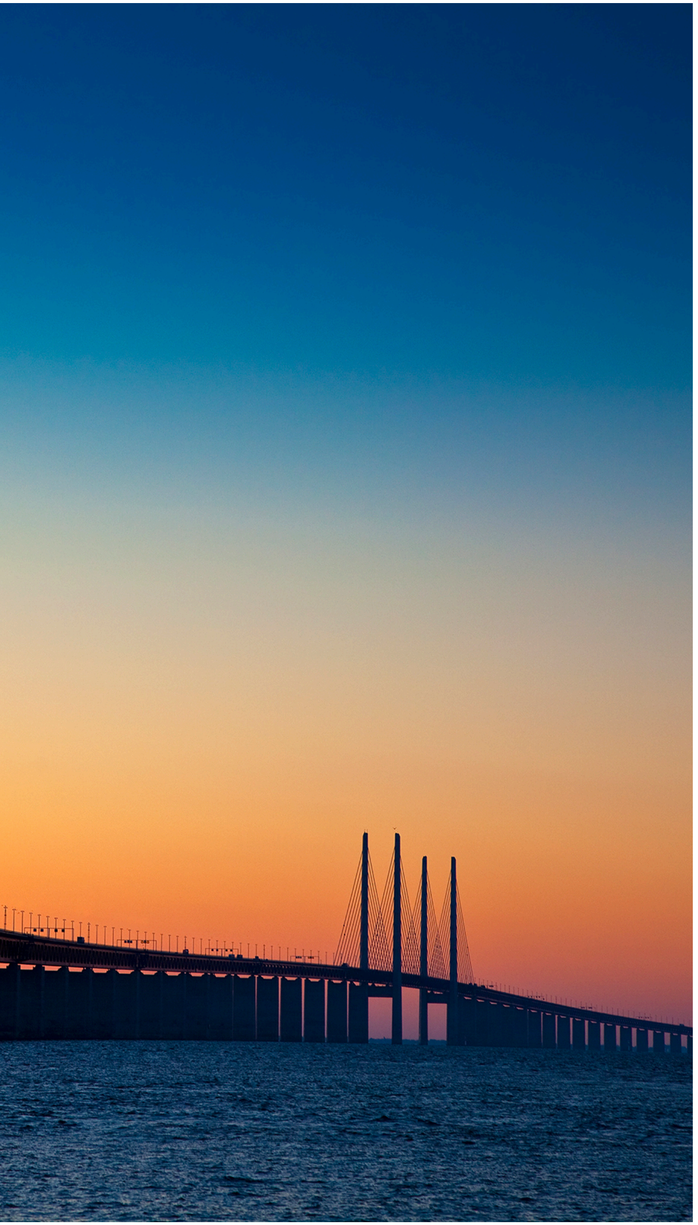
Stanford University

UCL

UNIVERSITY OF TORONTO

salk

NEW YORK UNIVERSITY



FOUNDERS WORDS

In high school and college, I often come across or learn about some of the hot topics in the field of biology, such as CRISPR technology, as well as various targeted cancer drugs in recent years. I was very interested and want to delve deeper into these areas of knowledge and learn about these advanced techniques.

Unfortunately, it was mostly difficult for us to truly access the knowledge within the field, let alone organize it from scratch.

I still remember when I first interviewed for a lab in my freshman year and the professor talked to me about short peptides. Suddenly, I thought of the reading research I had done on short peptides before. This sense of familiarity allowed me to **talk with the professor for two hours** and eventually **join the lab to start on my own individual project.** (Typically, students in the second year of college will join a lab and shadow a Postdoc member to do chores and work their way up.) This experience taught me that the degree of understanding of a field directly determines where your future starting point will be.

Therefore, we want to bring **Academic Seminars** beyond universities and that's our **Graduate Seminar Program (GSP)**. As mentors, we will **guide you into the field that interests you,** and **help you succeed in related high-entry fields in terms of courses, applications, and research in the future.** You can anchor an interest point in a wide range of academic fields, such as a protein that interests you, a specific gene, or a mechanism. Moreover, in Seminars, the collision of thoughts from different students can bring many **new ideas**, which may **become a research direction and goal in your future**! With your own ideas in mind, go find your professors, who are willing to help you realize your dream!

WHO ARE WE

One Lights Edu. was founded by alumni from top universities around the world. It is an education studio that provides exquisite services to support and enhance college applications for STEM and economics students. In the current stage, we offer personal and academic ability improvement, personalized application guidance, as well as access to limited educational and extracurricular resources.

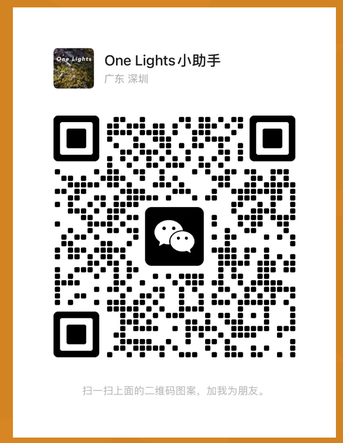
As the saying goes, teaching and learning complement each other. As alumni who have gone through the college application process and have similar experiences of studying abroad, we hope to inspire, guide, support, and empower students in constructing unique spaceships for their own future, based on sincerity and trust between us.

Let success continue and let ideas and culture be transmitted.

CONTACT US

- For General Information, please scan the QR code and follow our **WeChat Official Account** to learn more about One Lights Edu.!
- To learn more, sign up for a course, or have other enquiries, please scan the QR code and add **One-Lights Aide's Wechat**.
- For partnership and collaboration, please reach out to **pr.office@onelightsedu.com**
- If you want to join us and conduct a seminar as a mentor, please send your CV and Personal Statement to **hrofficial@onelightsedu.com**

WeChat Official Account



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