

Saltman Quarterly Info Session

April 22, 2015

What is Saltman Quarterly



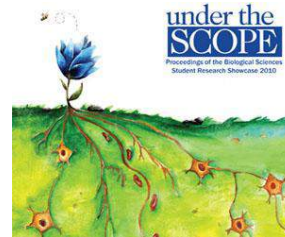
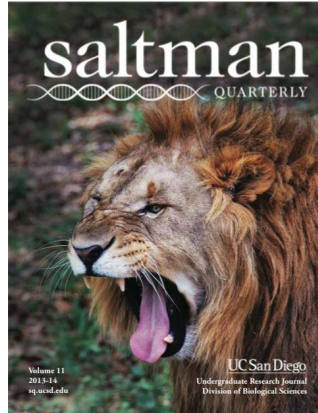
Program Components

6 components:

- *Saltman Quarterly* Journal
- *Under the Scope* Magazine
- SQ Insider
- SQ Online
- Biology Research Showcase
- Community Outreach

Our mission:

- Convey excitement for the sciences to the campus and the greater community!



Website: sqonline.ucsd.edu

Contact: sq@biomail.ucsd.edu



Meet the Staff!

SQ Advisory Board:

Faculty, Staff, Alumni



Faculty Advisors

Dr. Gabriele Wienhausen,
Head Advisor, Executive
Director of Education

Dr. Eric Allen

Dr. Timothy Baker

Dr. James Golden

Dr. Suckjoon Jun

Dr. Andrew Huberman

Dr. Jill Leutgeb

Dr. Steven Wasserman

Dr. James Wilhelm

Dr. Martin Yanofsky

Dr. Elvira Tour

Dr. Darcy Wooten

Dr. Aaron Coleman

Staff Advisors

Hermila Torres,
do/bio Manager

Elaine Fleming,
ACMS Web/Graphic

Madeleine Picciotto,
Director of the Writing
Center

Alumni Advisors

Kevin Perez

Sameeha Khalid

Arjun Patel

Mandeep Bajwa

Nicholas Kotsyubko

Michaela Go

Production Team

SQ Production Editor

SQ Design Editors (Research, Features, Special Sections)

UTS Production Editor

UTS Features Design Editor

Head Illustrator/Photographer

Staff Illustrator

Staff Photographer

Head Illustrator/Photographer

⚡ Goal: Add spice to science!

Is in charge of a team of photographers and illustrators who create and capture the art in both the Saltman Quarterly and Under the Scope magazine

And also...

- create for SQ Online Art Gallery
- Staff Photography
- Various projects depending on designer's needs!



Staff Illustrator and Photographer

 SQ Online (Ph/Ill)

 Title Illustrations (UTS and SQ) (Ill)

 Cover Photo (PH)

 Thesis Photo Shoot



SQ Production Editor

Oversee the overall design process

Liason between Core Staff, advisers and production team

Design miscellaneous products



GET INVOLVED!

Saltman Quarterly is the university's award-winning undergraduate biological sciences communication program. SQ's mission is to convey the excitement of science and increase the awareness of the contributions of undergraduate biological research to the University of California, San Diego and the greater San Diego community.

PROGRAM COMPONENTS:

SQ RESEARCH JOURNAL

The annual research journal is the program's flagship publication. It publishes original undergraduate research manuscripts, feature articles about significant research topics, scientific review papers, and brevias.

AVAILABLE POSITIONS: STAFF WRITERS, EDITORS, PHOTOGRAPHERS, ILLUSTRATORS, REVIEW BOARD MEMBER

UNDER THE SCOPE MAGAZINE

The Under the Scope Research Magazine captures the proceedings of the Biological Sciences Student Research Showcase and translates the cutting-edge science presented by undergraduates into exciting stories for those interested in biological research.

AVAILABLE POSITIONS: STAFF WRITERS, EDITORS, PHOTOGRAPHERS, ILLUSTRATORS

SQ ONLINE

SQ Online strives to serve as an accessible forum for the undergraduate biology community with timely research articles, feature pieces, faculty profiles, and student blogs. Read more at sqonline.ucsd.edu.

AVAILABLE POSITIONS: STAFF WRITERS, EDITORS, BLOGGERS, PHOTOGRAPHERS, ILLUSTRATORS, PUBLICITY COMMITTEE

COMMUNITY OUTREACH

The Community Outreach Committee is responsible for conveying Saltman Quarterly's passion for science to the community at-large through service projects and educational events.

AVAILABLE POSITIONS: COMMUNITY OUTREACH CHAIR AND COMMITTEE MEMBER

BIOLOGICAL RESEARCH SHOWCASE

The Biological Sciences Student Research Showcase celebrates the research achievements of undergraduates and Master's students who have conducted research in laboratories at UC San Diego.

Staff applications are accepted during Fall and Spring Quarters.

FOR FURTHER INFORMATION, VISIT SQUCSD.EDU
IF YOU HAVE ANY QUESTIONS, EMAIL US AT SQ@BIOMAIL.UCSD.EDU

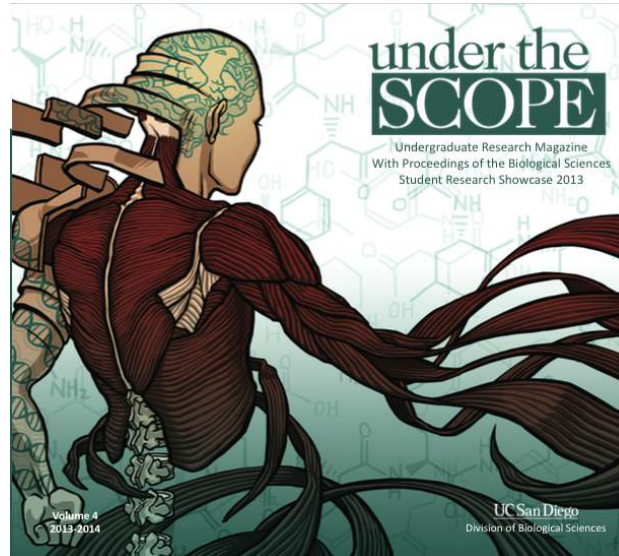
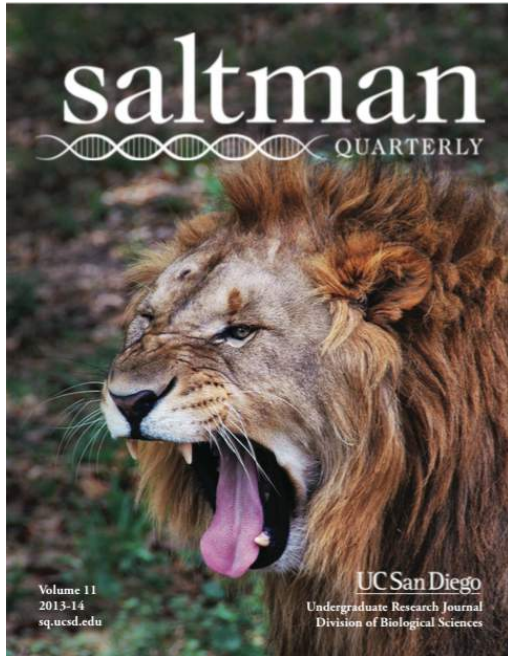


UTS Production Editor

- ❖ Goal: Create a magazine that portrays the writers work in a creative way to ensure clarity and understanding.
- ❖ Design various projects throughout year
 - UTS Magazine
 - Newsletter
 - Fliers
- ❖ Collaborate with
 - Features Writers and Editor
 - SQ Illustrators
 - SQ EIC and EE

Design Editors (SQ and UTS)

Design SQ, UTS and the SQ Insider!



Research Team

Special Sections Editor

Research Editor

Technical Editor

Review Board Manager

Review Board Member

Special Sections Editor

- Master's Brevias
- Senior Honors
- Thesis Abstract
- Saltman Dedication

DIVISION OF BIOLOGICAL SCIENCES

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Biological Sciences
where discovery comes to life
UC San Diego

Graduate

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Contiguous BS/MS Program

The Division of Biological Sciences offers a contiguous program leading to a Master of Science Degree in Biology for current UCSD undergraduate students who are enrolled in any of the B Biology majors. Qualified students can earn the MS degree within 3-5 quarters following receipt of the BS degree. Students enrolled in this program receive an advanced research experience by completing at least six contiguous quarters of biological research in one of the excellent research labs at UCSD. In addition, the BS/MS students complete 12 units of graduate-level courses in Biology, Medicine, or other disciplines related to their thesis project. Students complete their degree requirements by writing and defending a Master's thesis.

Please be sure to review all of the information on the [Prospective BS/MS Students](#) page. Interested students should contact the BS/MS Coordinator in the Biology Student & Instructional Services Office before the end of their junior year. For students who have already started their senior year, make sure to e-mail the BS/MS Coordinator as soon as possible!

Effects of Trophic Interactions and Climate on CO₂ Flux from Reservoirs

Emily Adamczyk, Ecology, Behavior, and Evolution | PI: Jonathan Shurin, Ph.D.

Background

Atmospheric carbon dioxide (CO₂) concentrations are rising due to the burning of fossil fuels and land use changes, thereby increasing global temperatures. Artificial reservoirs are particularly important to the flux of CO₂ from freshwaters because large amounts of organic carbon accumulate in their sediments [1]. It is estimated that they emit twice the quantity of CO₂ compared to natural lakes [1, 2]. The ecological processes that occur within these reservoirs determine whether they release or absorb CO₂. Primary producers such as phytoplankton utilize CO₂ for photosynthesis and are consumed and/or compete with fungi, invertebrates, bacteria and viruses [3]. Little is known about how these ecological interactions influence CO₂ flux, as they vary spatially and temporally.

Research and Methods

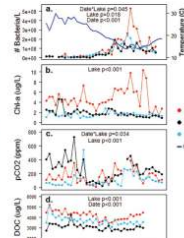
We are currently studying how seasonal changes in abiotic and biotic factors, such as zooplankton, phytoplankton, chytrid fungi, bacteria, dissolved organic carbon, and water temperature, influence CO₂ flux from three local reservoirs. We collected samples from Lakes Murray, Miramar, and Poway on a weekly basis for abiotic variables (conductivity, pH, salinity, % dissolved oxygen, wind speed), and biotic variables (the abundance of planktonic invertebrates, fungi, bacteria, and chlorophyll-*a*). Using the data we collected, we calculated the partial pressure of CO₂ (pCO₂) which indicates its exchange between the water and the atmosphere [1]. pCO₂ and wind speed was used to calculate CO₂ flux between the water and the atmosphere. We measured chlorophyll-*a* using a fluorometer to determine phytoplankton abundance. We examined bacteria and chytrids using DAPI stain and calcofluor white, respectively, and used a fluorescence microscope to determine their abundance. Dissolved organic carbon (DOC) was analyzed using a Total Organic Carbon Analyzer at the Scripps Institution of Oceanography. Data were analyzed using ANOVA models with lake and date as predictors.

Results

Bacteria abundance exhibited a seasonal trend, with the lowest biomass during summer, and highest during winter. This seasonal pattern of bacterial abundance differed among lakes (Figure 1c, P=0.018) and was inversely correlated with water temperature (Figure 1a, r=-0.66). Phytoplankton biomass (chlorophyll-*a*) did not vary seasonally but concentrations were consistently highest in Lake Murray (Figure 1b, P<0.001). pCO₂ (ppm) exhibited a seasonal trend where the concentrations rose during winter (Figure 1c, P<0.001). DOC concentrations were significantly different among reservoirs (P<0.001), with the highest concentrations in Lake Murray and the lowest concentrations in Lake Miramar (Figure 1d).

Discussion

pCO₂ rose during the winter in two of the three reservoirs but remained undersaturated compared to atmospheric values, indicating the reservoirs were absorbing CO₂ from the air (Figure 1c). This is unlike most reservoirs, which are oversaturated with carbon and release large quantities of CO₂ into the atmosphere [1, 2]. DOC concentrations varied at each lake but not over time (Figure 1d). There were seasonal trends in bacteria abundance (Figure 1a), in contrast with phytoplankton biomass



which did not vary seasonally (Figure 1b). Bacterial biomass was inversely correlated with water temperature, indicating that bacteria proliferate in colder habitats. Additionally, bacteria abundance was not correlated with DOC concentrations (r=-0.012) suggesting that the increase in bacteria abundance during the winter was a result of a factor other than allochthonous organic input or in situ primary production.

The growing human population is affecting the global carbon cycle by diverting more water from rivers and storing it in reservoirs. Our results suggest that reservoirs built for storing drinking water in semi-arid ecosystems absorb more atmospheric carbon than they are releasing, meaning that the reservoirs contain less CO₂ compared to the air. Our ultimate goal is to determine how the seasonal variation in ecological processes and species interactions influence the release of atmospheric carbon and what that means for long-term changes in the global carbon cycle.

References

- [1] J. Cole et al. Plumbing the global carbon cycle: integrating inland waters into the terrestrial carbon budget. *Ecosystems* 10, 172-185 (2007).
- [2] V. L. St. Louis et al. Reservoir surfaces as sources of greenhouse gases to the atmosphere: A global estimate. *BiScience* 50, 766-775 (2000).
- [3] J. Urabe et al. Within-lake and watershed determinants of carbon dioxide in surface water: A comparative analysis of a variety of lakes in the Japanese Islands. *Limnology and Oceanography* 56, 49 (2011).

Figure 1. a. Number of bacteria per liter by date. Bacteria abundance is low during the summer and increases during winter months (date: P<0.001), and is inversely correlated with water temperature (r=-0.66). b. Chlorophyll-*a* concentration (µg/L) by sampling date. There are no seasonal trends in chlorophyll-*a*, but Lake Murray has consistently higher chl-*a* concentration than the other lakes (lake*date: P<0.001). c. pCO₂ by sampling date. pCO₂ varies with time and is higher in the winter and lower in the summer (date: P<0.001). The seasonal pattern also varies among lakes (lake*date: P=0.034). d. DOC concentrations by sampling date. DOC concentrations were significantly different among reservoirs (P<0.001), with the highest concentrations in Lake Murray and the lowest

Special Sections Editor

- Master's Brevias
- Senior Honors Thesis Abstract
- Saltman Dedication

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Research for Academic Credit

BISP 196: Senior Honors Thesis Program

BISP 196: Senior Honors Thesis Program

The Senior Honors Thesis Program is open to declared biology majors who meet all eligibility requirements listed below. Students who successfully complete all the requirements for the program will have "Distinction" recorded on their transcript. Completion of this program is the only way to earn distinction through the Division of Biological Sciences.

Research must have a biological sciences focus and is subject to approval by the Division. If approved for BISP 196 credit, one quarter of BISP 196 may apply to biology major requirements as an elective. Additional quarters of special studies courses (196, 197, 198, 199) will result in upper-division university credit.

SENIOR HONORS THESES

The Division of Biological Sciences Senior Honors Theses Program (BISP 196) is open to undergraduate biology majors who have an overall and major GPA of 3.6 or higher, have senior standing, and commit to three consecutive quarters of research during their senior year. The program aims to increase faculty-student interactions and encourage more students studying biology to pursue independent research. Each student in the program has a faculty mentor who provides guidance throughout the year. During the spring quarter of each year, students in the program participate in a research showcase which gives them the opportunity to discuss their research with faculty and their fellow students. These are the abstracts of all the exceptional research projects conducted by undergraduates in the program during the 2013-14 academic year.



Maternal High Fat Feeding and Fetal Fat Accumulation in Mice

*Zhenyu 'Julia' Guo, Eleanor Roosevelt College, Human Biology major
PI: Jianhua Shan, M.D., Ph.D., UC San Diego Department of Pediatrics*

Maternal obesity or excessive weight gain during gestation increases offspring birth weight in humans. High birth weight is a strong indicative factor for obesity and metabolic defects during adulthood. Due to the limitations of some tissue mass measurement techniques of newborn and fetal fat, it is not clear whether this increase in birth weight is attributed to the increase in body fat or other tissues. By using the mouse model, this project investigated the effects of maternal over-feeding on fetal growth and fat development. High fat diet (60% calories from fat) or regular chow is provided to 2-3 month old C57BL/6 dams during gestational periods. Fetuses were collected at several time points during pregnancy through C-section and neonatal samples were collected within 12 hours after birth. Water is first removed from the samples through heating them in an oven at 85 °C overnight until constant mass. Then, fat is extracted from the samples by solvating in petroleum ether using a Soxhlet chemical extraction apparatus. Our results revealed that the average body composition of newborns to chow-fed dams were 84.35±0.15 % water, 0.59 ± 0.05% fat, and 15.06 ± 0.14% non-fat tissues. Comparing body fat of newborns, there was a slight increase in neonates of high fat diet-fed dams (n=6, 7.8±0.7 vs 19.9±4.5mg; p=0.06) but did not reach to statistical significance. In addition, compared to newborns from chow-fed dams, neonates of high fat diet-fed dams also displayed a slight increase in non-fat tissue mass (n=6, 196.5±6.2 vs 209.8±6.7mg; p=0.22) and water content (n=6, 1099.5±24.5 vs 1185.8±37.1mg; p=0.11). This study is part of an ongoing project in our lab. More samples are required to conclude the effects of maternal over-feeding on fetal fat development in mice.

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PAUL SALTMAN : **MENTOR**

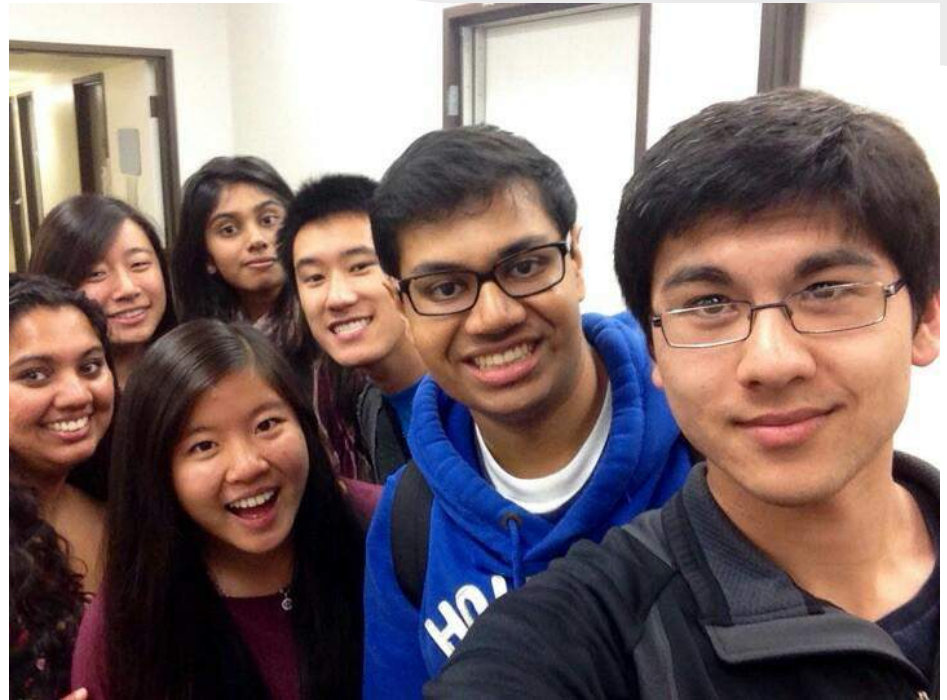
When we attend college, we are doing more than just furthering our education. In the time that we spend here, we form important relationships with students and faculty and even become a part of a larger community outside the university. One of the great pioneers in establishing this kind of far-reaching community was the late Dr. Paul Saltman. Dr. Saltman was a renowned professor in biochemistry and a leader at UC San Diego who changed what it meant to be a student at this university.

Dr. Saltman first came to UC San Diego as a professor in the Department of Biology in 1967 and soon was appointed as Provost of Revelle College. He was tasked with decreasing student unrest over the Vietnam War. Instead of trying to crush student opposition with force or strict rules, Dr. Saltman opened his office door to students, as he would for the rest of his time at UC San Diego. Students could walk into his office and voice their concerns, talk about class, or just chat about anything.

Describing a student's visit to his office, Dr. Saltman said, "I hate barriers. People use desks to keep people away. So I sat down beside her in a small chair..." This down-to-earth approach to communicating with students worked well. Dr. Saltman believed that the key to fixing the conflict between the administration and students was to form a relationship built on mutual respect. This system really changed the way students saw their faculty and began

Research Editor

- Research manuscripts
- Review papers
- Facilitate communication between faculty, staff, and authors



Research Editor

- Senior Research Editor and Junior Research Editor
- Research manuscripts
- Review papers



Technical Editor

- Edit research manuscripts, articles, reviews, and online posts
- Master AP and CSE styles
- Works with Research and Production teams



Technical Editor

Abstract

Myelodysplastic syndromes (MDS) are clonal bone marrow disorders characterized by ineffective hematopoiesis, blood cytopenias, abnormal differentiation, and the risk of progression to acute myeloid leukemia (AML).¹ Among the many factors that contribute to MDS, one ~~is recently explored is that of~~ mutations in ~~genes of~~ splicing factor ~~genes~~ such as *SRSF2*, *SF3B1*, and *U2AF1*. These mutations are associated with ~~poor~~ overall ~~poor survival and prognosis and survival for~~ MDS patients. ~~Hence, the~~ focus of the drug study ~~conducted was to test testing~~ multiple K562 cell lines with various forms of *SRSF2* mutations. Splicing factor inhibitors *FD-895* (F) and *PLAD-B* (P) were utilized to determine significant ~~differences in effects on~~ cell death or viability between the wild type (WT) and mutants. The data revealed that although there were no significant differences between responses of ~~the~~ WT and mutants to drug therapy, there were differences ~~in efficacy~~ between drugs F and P ~~themselves in terms of efficacy~~ efficacies. Overall, this experiment served as a baseline for future research regarding *SRSF2* mutations and their responses to splicing factor inhibitors. A better understanding of these inhibitor treatments may ~~potentially~~ aid in creating targeted therapy for MDS.

Replace: "concentrations as compared to" with "than that of"



Ivonnie Shih
8:37 PM Apr 11



Delete: "as"



Maxwell Ruckstuhl
6:52 PM Apr 13



Replace: "thereby signifying" with "reflecting"



Maxwell Ruckstuhl
6:53 PM Apr 13



Replace: "higher" with "greater"

Review Board Manager

- Organizes educational workshops with UCSD faculty to communicate review guidelines for manuscript submissions
- Serves as liaison between the review board members and the research team
- Promotes an understanding of high ethical standards for research submissions within the review board.

Review Board Member

- Attends mandatory workshops hosted by the Review Board Manager and UCSD faculty.
- Provides insight into manuscripts submissions for the SQ print journal.



Writing Staff

Features Editors (SQ and UTS)

Staff Writer

Online Editor

Online Reporter

Blog Manager

Blogger

SQ Features Editor

- **Oversee editing of features articles**
 - Is the “big picture” there?
- **Helps writers with topic selection and writing guidelines**
 - Is this something that our audience will read?
 - Are we following our deadlines?
- **Coordinate with Production and Technical Editors**
 - Did articles receive proper edits?

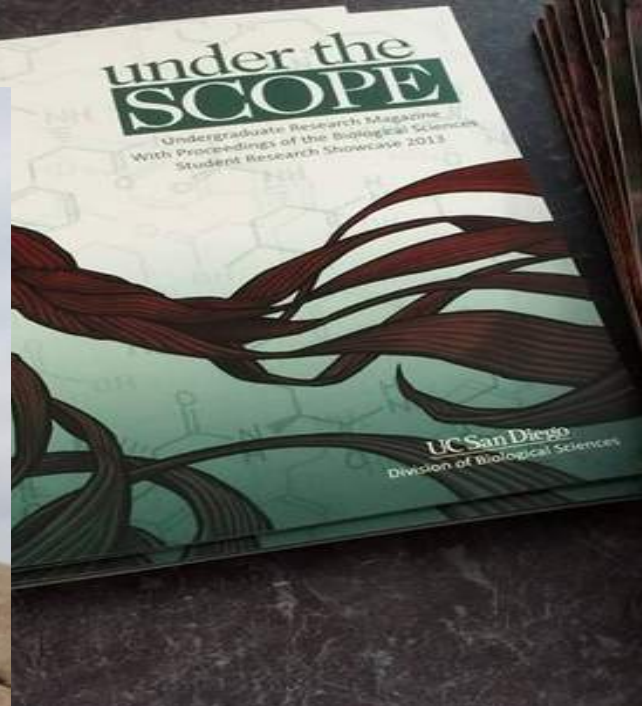


SQ Staff Writer

Expectations:

- **SQ Print**
 - Write about current and interesting research done by UCSD faculty
 - Conduct interviews with students and faculty
 - Coordinate with editorial crew throughout the writing process
- **SQ Online**
 - Write about issues relevant to scientific and student community
 - Conduct interviews with students and faculty
 - 1 online article per quarter about anything that interests you

UTS Features Editor



FEATURED ARTICLES

EMPLATING COFFEE: IS THE
S FAVORITE DRINK OUR FRIEND
OR OUR FOE?

SARAH GEORGE /

D ARTICLES / MARCH 13, 2015

es hangovers!"

GIES FOR THE SAKE OF YOUR
ALLERGIES

ONG / FEATURED ARTICLES /
MARCH 13, 2015

ou are handed a bowl of broccoli
er, consider taking it, even only for
your allergies.

Search here...

PHOTO GALLERY



SQ INSIDER

Click to read



UC SAN DIEGO RECEIVES RECORD
NUMBER OF APPLICATIONS
ARUSHI ATLURI /
FEATURED ARTICLES / MARCH 11, 2015

UTS Staff Writer

Expectations:

- UTS Print
 - Commit to writing one features article (with your team)
 - Topic: theme pulled from Biological Sciences Student Research Showcase
 - Conduct interviews with students and faculty
 - Coordinate with editorial staff, illustrators, and each other throughout the process



Online Editor

- Guide writers through online writing
- Keep up with a faster work environment
- Work with large volumes of articles
- Manage three different branches and communicate with the rest of core staff
- Have your mind blown by vast quantities of cutting edge research presented by talented writers

Online Reporter

Expectations:

- Write exclusively online content
- Think about readership when brainstorming
- Work with tighter deadlines than other writers
- Write about a greater variety of topics
- 4 articles on SQ Online/quarter

Blog Manager

- Guide bloggers through their posts
- Make sure the best content is posted on time
 - Understand the faster deadlines
- Keep SQ on the radar throughout the year
- Get people excited about science

Blogger

- Write interesting and relevant pieces once every two weeks
- More casual way of communicating science
- Writing follows a specific theme of the blogger's choice
- Breaking the Fourth Wall-E has 2nd most views after the home page

Media and Publicity

Media Editor

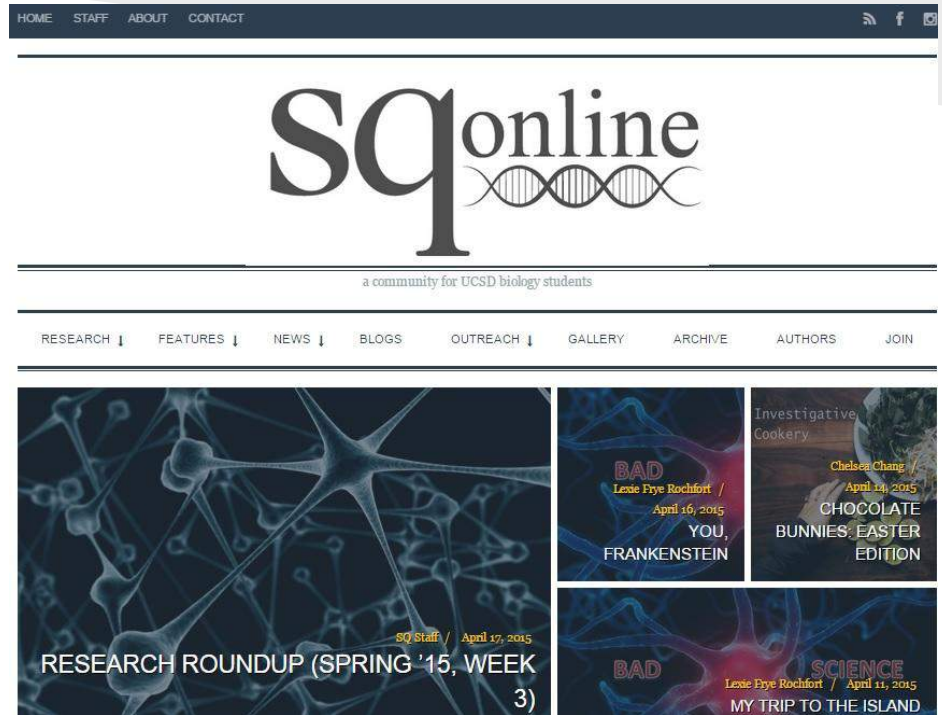
Media Committee Member

Publicity Chair

Publicity Committee Member

Media Editor

- Oversee the publicity committee and oversees media production for the website.
- Responsible for the maintenance and social media presence of the Sqonline website.
- Helps create new ways to publicize online and have a social media presence.



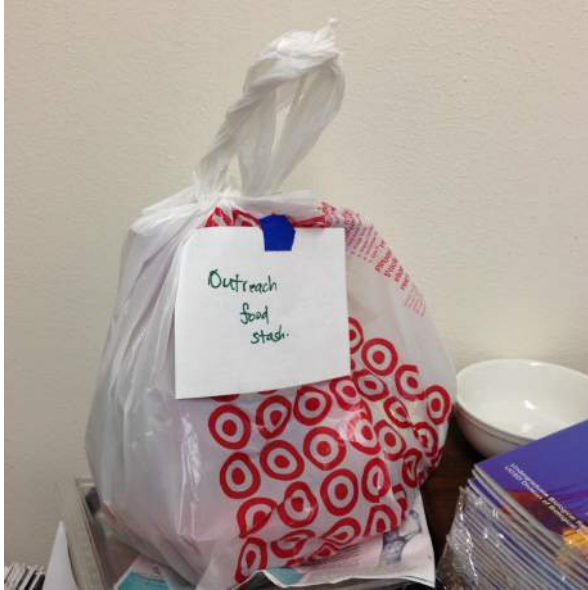
Community Outreach

Community Outreach Chair

Community Outreach Committee Member



Community Outreach Chair



- Networking with school teachers, students, as well as external organizations
- Strong ties with core staff and advising to encourage participation
- Time management, organization, intelligent decision making / delegation skills
- **Ability to be flexible with other peoples' schedules**
- Connections with other organizations and faculty to recruit and organize events.
- Creative problem solving and planning to improve current programs and make new, successful ones.

Time Commitment: 4 hours/week for organizational tasks, 1-3 hours/week for networking/communication between orgs.

Community Outreach Committee Member



- Work well in a team and with CO Chair.
- Comfortable networking with external organizations
- **Time commitment: 2-3 hours per week for organizational and networking tasks**
- **Ability to be flexible with other peoples' schedules**
- Agile and prompt response time + availability through online messaging methods (GroupMe, SMS, Facebook)



Application Cycle for 2015-16 Staff

Primary Application deadline:

Friday, May 1st 5 pm

sqonline.ucsd.edu/join

Check out the position descriptions:

sqonline.ucsd.edu/about

**Secondary application for staff writers and online reporters*

Next steps

Interviews

- Core staff positions: **Week 6 and 7**
- Editor, Committee Chair, Staff Writer, Online Reporter, and Blogger: **Week 7**
- All other positions: **Week 8 and 9**

When do I start?

- Weeks 9-10: Meet with the old staff to get to know your position
- Summer: the position is all yours; you will have some planning to do for the upcoming year!

Thank you!