

National Institute on Drug Abuse

2014 Summer Research with NIDA for Underrepresented Students



*“Providing students
with valuable drug abuse
research experiences”*



PROGRAM

The *Summer Research with the NIDA (National Institute on Drug Abuse) for Underrepresented Students* program supports students from groups underrepresented in the sciences to pursue careers in biomedical and behavioral research. Through this program, high school and undergraduate students from underrepresented groups are introduced to the field of substance abuse and addiction research by participating in research internships with some of NIDA's most distinguished scientists at universities across the United States. Students work with leading scientists for 8-10 weeks during the summer. The internship may include laboratory experiments, data collection, data analysis, formal courses, participation in meetings, interviewing, manuscript preparation, patient recruitment, library research, and literature reviews. In addition, it is expected that at the end of the internship, each intern will deliver a formal presentation on his/her research project.

The *Summer Research with NIDA* program is in its eighteenth year. Since the program's inception in 1997, more than 815 students have gained experience in substance abuse and addiction research.

ELIGIBILITY

This program supports summer research internships for high school and undergraduate students who are from racial/ethnic groups that are nationally underrepresented in the biomedical, behavioral, and clinical sciences (African Americans, Hispanic Americans, American Indians/Alaska Natives, Hawaiian Natives, and natives of the U.S. Pacific Islands), although all racial/ethnic groups can apply.

Applicants must be at least 16 years of age (unless a specific project indicates otherwise) and **must be U.S. citizens or permanent residents (No Exceptions)**.

Individuals who have participated in the *Summer Research with NIDA* program for two summers are no longer eligible to apply.

SCOPE OF SUPPORT

- High school students will receive stipend amounts based on the rate agreed upon with each research site, not to exceed \$8.00 per hour for a maximum stipend of \$3,200 for 10 weeks.
- Undergraduate students, including graduating high school seniors enrolled in college for the fall, will receive stipend amounts based on the rate agreed upon with each research site, not to exceed \$10.00 per hour for a maximum stipend of \$4,000 for 10 weeks.
- Please note that the research site you are matched with will set up your pay schedule and method.

Distant Sites: Only students who are 18 years old and older may be placed at sites greater than daily-commuting distance from their homes. In cases where students are placed at distant sites, investigators can request up to \$2,500 for travel, costs associated with lodging and per diem expenses for these students. In most cases, investigators/research sites will locate/secure housing for students. If lodging is available at the research site, it is indicated in the site description. On-campus housing is not available for students under 18 years old or for undergraduate students who live within daily commuting distance of their assigned internship site.

APPLICATION PROCEDURES

To apply for this program use the online application: <https://nidaextshare.nida.nih.gov/SRP/layouts/NIDA.SummerInternshipProgram/ApplicationForm.aspx?XsnLocation=/SRP/forms/Application.xsn>. Please review the research projects and locations listed in this brochure prior to making your final research site selections. After reviewing the research descriptions, indicate on the application form the three sites that best match your research interests and experience.

Application components include:

- **an application form**
- **current transcripts**
- **two letters of recommendation**

All application materials must be submitted by Friday, February 14, 2014. (No Exceptions)

APPLICATION REVIEW & SELECTION

Interns are selected according to the following criteria:

- Professional goals
- Research interests
- Academics success
- Letters of recommendation
- Program priorities

CONTACT

For further information please contact Julie Huffman, huffmanj@mail.nih.gov, telephone: 301-443-9798.

Program Director, Albert Avila, Ph.D., aavila@nida.nih.gov.

2014 Summer Research with NIDA

Site List by State



2014 Summer Research with NIDA Site List by State

State	Site Name	Project Title	Site Number	Housing Available	High School Students	Undergraduate Students
Arizona	Arizona State University, Tempe, AZ	Relationship Dynamics	1		●	●
	University of Arizona, Tucson, AZ	Novel Non-Peptide Ligands for Pain	2	●	●	●
Arkansas	University of Arkansas for Medical Sciences, Little Rock, AR	Improving Buprenorphine Detoxification Outcomes with Isradipine	3	●	●	●
California	University of California, Irvine – Irvine, CA	Characterization of Anandimide Transport in Brain	4			●
	The Scripps Research Institute, La Jolla, CA	Role of Hippocampal Neurogenesis in Reducing Relapse to Methamphetamine-Seeking	5			●
	University of California, San Diego, La Jolla, CA	Molecular Epidemiology for HIV Prevention for Drug Users and Other Risk Groups	6			●
	Charles R. Drew University, Los Angeles, CA	Metabolic Effects of Nicotine: It Matters	7	●	●	●
	University of California, Los Angeles – Los Angeles, CA	SBIRT for Substance Abuse in Mental Health Treatment Settings	8		●	●
	University of California, Los Angeles – Los Angeles, CA	MSM and Substances Cohort at UCLA	9	●		●
	University of California, Los Angeles – Los Angeles, CA	Social Networks and Drug Use among Low-Income Students in High-Performing Schools	10			●
	Astraea Therapeutics, Mountain View, CA	Discovery of Bifunctional NOP/Opioid Receptor Ligands for Drug Abuse Therapy	11			●
	University of California, San Francisco – San Francisco, CA	Marketing, FDA Communication, Tobacco Perceptions and Use in Addiction Treatment	12	●		●
Connecticut	Yale Child Study Center, New Haven, CT	Maternal Brain and Behavioral Responses to Infant Cues in Cocaine-Exposed Mothers	13			●
	Yale University, West Haven, CT	Default Mode and Control Brain Networks in Cannabis Dependence and Abstinence	14			●
District of Columbia	American University, Washington, DC	Placebo Mechanisms Underlying Smoking Behavior and Relapse Processes	15			●
	Children’s National Medical Center	Genetic Mechanisms Underlying Mammalian Limbic System Development and Circuit Connectivity	16		●	●
Florida	University of Florida, Gainesville, FL	Transformative Approach to Reduce Research Disparities Toward Drug Users	17			●

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	The Scripps Research Institute - Scripps Florida, Jupiter, FL	Neurobiology of Vulnerability to Comorbidity of Cocaine Addiction and Depression	18			●
	Florida International University, Miami, FL	Reactivation of Latent HIV Infection in Brain and the Role of Recreational Drugs	19	●	●	●
	University of Miami School of Medicine, Miami, FL	Social and Environmental Factors in Adolescent Stimulant Abuse	20	●	●	●
	Florida State University, Tallahassee, FL	Neurobiological Effects of Social Stress on Mood Regulation and Nicotine Preference	21			●
Hawaii	Hawaii Pacific University, Honolulu, HI	The Development of a Video-Enhanced Drug Prevention Program for Rural Native Hawaiian Youth	22			●
	University of Hawaii, Honolulu, HI	Interaction of HIV-Tat and Methamphetamine: Role of Ion Channels and Epigenetics	23	●		●
Illinois	University of Illinois, Urbana-Champaign, Champaign, IL	Mechanisms of Amphetamine-Induced Plasticity in Adolescents Compared to Adults	24		●	●
	University of Chicago, Chicago, IL	Systems Genetic Analysis of Methamphetamine's Motivational Effects in Mice	25	●	●	●
Maryland	Johns Hopkins University School of Medicine, Baltimore, MD	Nicotine Dependence, Withdrawal, and Replacement Therapy Assessed by PET	26			●
Massachusetts	McLean Hospital, Belmont, MA	Nabilone for Cannabis Dependence: Imaging and Neuropsychological Performance	27			●
	McLean Hospital, Harvard Medical School Affiliated, Belmont, MA	Role and Regulation of Class IIa HDACs in Cocaine Addiction	28			●
	Boston Medical Center, Boston, MA	Implementing Opioid Risk Reduction Strategies into Primary Care Practice (TOPCARE)	29			●
	Tufts University School of Medicine, Boston, MA	A Brief Substance Use Preventive Intervention for Parents of Pre-Adolescents	30		●	●
	Harvard Medical School, Massachusetts General Hospital, Charlestown, MA	Development of Tools to Understand Neurochemistry and Brain Function	31			●
	Tufts University, Medford, MA	Neuropeptides, Social Stress and Drugs of Abuse	32			●
Michigan	University of Michigan, Ann Arbor, MI	Drug Development for Rare Diseases	33		●	●

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Minnesota	University of Minnesota, St. Paul, MN	Effectiveness of a Web-Enhanced Parenting Program for Military Families	34	●		●
Missouri	Washington University School of Medicine, St. Louis, MO	Genome-Wide Association Study of Injection Drug Use: A Multiethnic Study	35	●		●
	Washington University School of Medicine, St. Louis, MO	Policy and New Media Influences on Youth Substance Use Behaviors	36	●	●	●
Nebraska	University of Nebraska Medical Center, Omaha, NE	HIV Tat & Cocaine-Medicated Induction of Astrogliosis: Role of ER Stress in HAND	37		●	●
Nevada	University of Nevada, Las Vegas, NV	Family Behavior Therapy for Drug Abuse in Collegiate Athletes	38	●		●
New Jersey	Seton Hall University, South Orange, NJ	Glial-Neuronal Interactions Underlying the Molecular Feedback between HIV Viral Proteins and Methamphetamine	39	●	●	●
New York	The State University of New York, Buffalo, NY	Substance Use in Reserve Soldiers: Social and Environmental Influences	40	●		●
	Center for Health, Identity, Behavior, and Prevention Studies, New York, NY	Syndemic Production Among Emergent Adult Men	41	●		●
	Columbia University, New York, NY	Post Exposure Prophylaxis among IDU Syringe Customers – Pharmacy Pilot Intervention	42	●		●
	Columbia University, New York, NY	Promoting Evidence-Based Screening, Assessment, and Treatment for Mental Health, Substance Use, and HIV Risk for Youth in the Juvenile Justice System	43			●
	Columbia University, New York, NY	Mechanisms Underlying Opioid-Induced Pain Sensitivity	44			●
	New York University School of Medicine	Drug Use and Problem Behaviors in Minority Youth	45			●
	State University of New York, Stony Brook, NY	Optical Neuroimaging to Study the Functional Change of Brain <i>In Vivo</i>	46			●
North Carolina	University of North Carolina, Chapel Hill, NC	The Effect of Riluzole on Cocaine-Seeking Behavior	47	●		●
	University of North Carolina, Chapel Hill, NC	Organismal and Genetic Networks in Drug Reward and Reinforcement	48			●
	University of North Carolina, Chapel Hill, NC	Deep Sequencing Studies for Cannabis and Stimulant Dependence	49	●		●

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	Duke University, Durham, NC	Effects of Cocaine and HIV on Decision-Making Involving Potential Losses	50			●
Oregon	Oregon Social Learning Center, Eugene, OR	Long-Term Effects of a School Readiness Intervention for Foster Children	51			●
	University of Oregon, Eugene, OR	Siblings Reared Apart: A Naturalistic Cross-Fostering Study of Young Children	52			●
Pennsylvania	Temple University, Philadelphia, PA	Role of Epigenetics in Glutamate Transporter EEAT2 in Regulation in Neuroaids	53			●
	Temple University, Philadelphia, PA	Drug Abuse, Host Immunity, and HIV/HCV Infection	54			●
	University of Pennsylvania, Philadelphia, PA	Summer Research with NIDA at the University of Pennsylvania	55	●		●
	University of Pittsburgh, Pittsburgh, PA	Cocaine-Induced Adaptation in NMDA Receptors	56		●	●
Puerto Rico	University of Puerto Rico Graduate School of Public Health, San Juan, PR	DIDARP at the Graduate School of Public Health	57		●	●
South Carolina	Medical University of South Carolina, Charleston, SC	Cellular Regulation of Dopamine-Dependent Behaviors	58			●
South Dakota	University of South Dakota, Vermillion, SD	Neural Sensitivity to Stress during Drug Withdrawal	59	●		●
Tennessee	East Tennessee State University, Johnson City, TN	Nicotine and the Roles of Nicotinic Receptors in a Rodent Model of Schizophrenia	60	●		●
Texas	The University of Texas Southwestern Medical Center, Dallas, TX	Attenuation of Corticosteroid-Induced Hippocampal Changes	61		●	●
	The University of Texas at El Paso, El Paso, TX	Nico-teen: Mechanisms of Nicotine Reward and Withdrawal During Adolescence	62	●		●
	University of Texas Medical Branch, Galveston, TX	Molecular and Behavioral Neuroscience of Addiction	63	●		●
	Baylor College of Medicine, Houston, TX	Maternal Brain and Behavioral Responses to Infant Cues in Cocaine-Exposed Mothers	64		●	●
	University of Houston, Houston, TX	Integrated Smoking Cessation Treatment for Emotional Dysregulation	65	●	●	●
	University of Texas, San Antonio, TX	Mapping Functional Inputs to Dopaminergic Neurons	66	●	●	●

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	The University of Texas Health Science Center, San Antonio, TX	Relating Brain Maturation to Impulse Control and Substance Use	67		●	●
	The University of Texas Health Science Center, San Antonio, TX	Consequences of Adolescent Substance Use on the Development of Impulse Control	68		●	●
Utah	Utah State University, Logan, UT	Multimethod Mediation Analysis in Prevention Research	69			●
Washington	University of Washington, Seattle, WA	Gene-Environment Interplay in the Development of Drug Abuse, HIV Sexual Risk Behavior and Comorbid Problems	70	●		●
	University of Washington, Seattle, WA	Using Media to Investigate Mechanisms of Behavior Change	71			●
Wisconsin	University of Wisconsin-Madison, Madison, WI	Implementing Technology-Assisted Drug Treatment and Relapse Prevention in FQHCs	72	●	●	●
	University of Wisconsin-Madison, Madison, WI	To Test a Payer/Treatment Agency Intervention to Increase Use of Buprenorphine	73			●
	Marquette University, Milwaukee, WI	Preclinical Neurobiological Research on Cocaine Addiction.	74	●		●

Investigator:	Thomas Dishion, Ph.D.
Institution:	Arizona State University, Tempe, AZ
Research Area:	Family-based Prevention, Social Neuroscience, Child & Family Intervention, Developmental Psychobiology
Project Title:	Relationship Dynamics
Start Date, Program Length:	5/26/2014 -- 8 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Ability to communicate effectively and enjoys working with people, interest in behavioral neuroscience or social cognition (i.e., EEG, social interactions, decision-making), good academic standing, interest in pursuing graduate education and research in psychology or related field, is conscientious, curious, and able to learn through hands-on training, and majoring in Psychology (if undergraduate student). If high school student, must live in the Phoenix area. If undergraduate student and out of state, must find housing on their own. Students will be required to work with human participants. Previous research experience is not required.

Project Description: The Relationship Dynamics Lab is working on a neuroscience project looking at how the brain processes social information in romantic relationships and how it may inform us of relationship dynamics. The lab focuses on understanding relationship dynamics that are problematic (i.e., coercion, conflict, risk-taking) as well as those that occur in healthy relationships (i.e., empathy, trust, social reward) in young adults. As alcohol and drug use are highly prevalent in young adults, the lab is measuring substance use levels both as individuals and as a pair within romantic relationships and its influence on relationship dynamics. The lab approaches these questions from a social neuroscience framework, integrating direct observations of social interaction patterns with subjective reports, and psychophysiological neurocognitive assessments. The research aims to develop our understanding of how relationship dynamics relate to relationship quality and how individuals in romantic relationships influence their partners' behavior and emotions. The lab is currently utilizing EEG recording during a behavioral computer task and a live conflict interaction to answer these questions. Summer interns would be involved in this project by working with EEG equipment, guiding participants through experimental trials, entering questionnaire data, helping process EEG data, and video coding live interaction tasks. In addition to the Relationship Dynamics lab at ASU, we have four ongoing randomized prevention trials involving longitudinal data with families. These are the Early Steps Multisite Project (early childhood), the Project Alliance 1 study (adolescence), Project Alliance 2 study (adolescence) and the EcoFIT randomized effectiveness study involving 41 public middle schools.

Investigator: Victor J. Hruby, Ph.D.
Institution: University of Arizona, Tucson, AZ
Research Area: Novel Drug Design, Synthesis of Novel Ligands, and Pharmacological Evaluation of the Biological Activity Profiles in Relation to Pain and Addiction
Project Title: Novel Non-Peptide Ligands for Pain
Start Date, Program Length: 6/2/2014 -- 10 weeks
Housing Available: Yes
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Previous research experience is not required. However, I want the student to be interested in developing his or her own research interest and to have a true research experience. This generally means that they will perform state-of-the-art research as part of their research experience. They will probably not be working with animals in this research. Students can major in any area of science.

Project Description: We are developing novel non-peptide and/or novel non-peptide-peptide conjugates. This research involves analyses of new possible structure-activity relationships, design and synthesis of novel non-peptide-heterocyclic ligands that are predicted to interact with opioid receptors (primarily mu and delta), and to have none or minimal toxic side effects of current opioid drugs used in clinical medicine. The student will then be involved in all aspects of the research program with special emphasis doing the synthetic chemistry related to the new designed compounds and learning how to do synthetic chemistry safely, and with high yields and efficient purification and analyses methods.

Arkansas

Investigator: Alison Oliveto, Ph.D.
Institution: University of Arkansas for Medical Sciences, Little Rock, AR
Research Area: Opioid Dependence; Detoxification, Clinical Trials, Withdrawal
Project Title: Improving Buprenorphine Detoxification Outcomes with Isradipine
Start Date, Program Length: 5/15/2014 -- 8 weeks
Housing Available: Yes
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Mature, excellent interpersonal (verbal and written) communication skills, at least basic computer skills.

Project Description: This 8-week study seeks to determine whether isradipine, a non-narcotic medication with minimal abuse potential and preclinical evidence of efficacy, will be effective in relieving withdrawal symptoms, craving and illicit drug use relative to placebo in opioid dependent participants undergoing a 10-day detoxification from buprenorphine. During the internship, the student will be a member of a dynamic, highly interactive research team and, after orientation and training, will be involved in several aspects of the study, including assisting with the screening of potential study participants to determine their eligibility to participate, conducting research assessments (e.g., self-reported drug use, ratings of craving and withdrawal, pupil diameter measurement, vital signs, etc.) with participants, participating in team meetings, performing data entry, etc. The student will also have the opportunity to learn about and participate in the conduct of other on-going studies that are addressing psychostimulant dependence.

Investigator:	Daniele Piomelli, Ph.D.
Institution:	University of California, Irvine, Irvine, CA
Research Area:	Functions of Lipid-Derived Signaling Molecules in Physiological and Pathological Regulation, Inflammation, Obesity, Pain, Autism and Drug Addiction
Project Title:	Characterization of Anandamide Transport in Brain
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Familiar with basic knowledge of laboratory environment, completed lower division biology and/or chemistry courses (lectures & labs), ability to work with laboratory animals such as rats and mice, collect animal tissues and work with hazardous chemicals such as methanol and chloroform. Prior research experience is preferred but not required of undergraduate students.

Project Description: The endocannabinoids (eCB) –2-arachidonoylglycerol (2-AG) and anandamide– and their attending cannabinoid (CB) receptors serve important functions in the modulation of various long- and short-term changes in synaptic efficiency. Our previous studies suggest that a supra-molecular complex (‘signalosome’), which positions metabotropic glutamate receptor (mGluR) 5 in close proximity of the 2-AG-synthesizing enzyme diacylglycerol lipase (DGL)- α , provides a scaffold that allows for the localized formation of a signaling-competent pool of 2-AG at the dendritic spines of excitatory synapses (Jung et al., 2005, 2007, 2013; Katona et al., 2006). Evidence indicates that cocaine may influence the function of this complex: (a) acute cocaine administration enhances expression of the scaffolding protein, Homer 1a, a key structural component of the 2-AG signalosome; (b) genetic or pharmacological interference with mGluR5 activity attenuates cocaine sensitization and reward; (c) disrupting the association between mGluR5 and Homer in the nucleus accumbens attenuates cocaine-seeking behavior; and (d) deletion or blockade of CB1 receptors impairs cocaine self-administration. Therefore, we hypothesize that cocaine causes plastic changes in the activity of the 2-AG signalosome, which contributes in turn to the reinforcing effects of the drug. To test this hypothesis, we will evaluate the effects of cocaine on (a) levels of 2-AG and other endocannabinoid lipids using liquid chromatography/mass spectrometry (LC/MS); (b) expression of 2-AG signalosome proteins; and (c) mGluR5-dependent stimulation of 2-AG production in synaptoneurosomes (a preparation enriched in nerve endings/postsynaptic spines). We hypothesize that cocaine administration will cause plastic changes in the expression of key proteins of the 2-AG signalosome, leading to an enhancement of its activity to synthesize 2-AG. The project may help uncover novel functions of 2-AG in cocaine addiction and might help lay the groundwork for the discovery of new therapeutics for drug addiction. The summer intern will be involved in all aspects of the project. She/he will acquire experience in the LC/MS analysis of lipids, molecular techniques and the preparation of mouse brain synaptoneurosomes.

Investigator: Chitra D. Mandyam, Ph.D.
Institution: The Scripps Research Institute, La Jolla, CA
Research Area: Neuroscience, Cell Biology, Biochemistry
Project Title: Role of Hippocampal Neurogenesis in Reducing Relapse to Methamphetamine-Seeking
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Students majoring in Biochemistry or Neuroscience preferred. Students should have an interest in animal behavior dealing with methamphetamine self-administration, biochemical experiments including immunohistochemistry and should be interested in performing extensive microscopic analysis. Students with experience in animal handling, pipetting, and tissue handling are desired.

Project Description: Neural stem cells persist in the adult hippocampal subgranular zone and mature into hippocampal granule cell neurons (a process known as hippocampal neurogenesis). Neurogenesis may play a significant role in brain repair and recovery from a number of insults. Withdrawal and relapse are integral parts of the addiction cycle, and withdrawal from methamphetamine self-administration (Meth SA) enhances reinstatement to Meth seeking. It is therefore essential to determine whether withdrawal from Meth SA alters the process of hippocampal neurogenesis via altering the structural plasticity of newly born granule cell neurons in the hippocampus. The student intern will assist the graduate student to determine whether withdrawal from Meth SA alters the dendritic arborization and spine density of newly born and preexisting neurons in the granule cell layer of the hippocampus. We will use techniques such as retroviral labeling to label newly born granule cell neurons and perform 3D structural analysis on these neurons. We will also perform Golgi-Cox staining to label preexisting neurons and perform 3D structural analysis on Golgi-Cox labeled neurons. We will use state-of-the-art software Neurolucida and NeuroExplorer from MicroBrightField to perform these studies. The overall goal of the summer internship will be to assess if withdrawal from Meth SA differentially alters the structural plasticity of newly born versus preexisting neurons in the granule cell layer in the dentate gyrus of the hippocampus. Preclinical rodent models of intravenous Meth SA will be used.

Investigator:	David Smith, M.D.
Institution:	University of California, San Diego, La Jolla, CA
Research Area:	HIV, Risk Behavior
Project Title:	Molecular Epidemiology for HIV Prevention for Drug Users and other Risk Groups
Start Date, Program Length:	5/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Will require students to work with human tissue samples. Some laboratory experience preferred.

Project Description: The goal of this project is to integrate data from local research, clinical and public health entities that are screening for and treating HIV infected persons. These data will be obtained in a de-identified manner, parsed and then organized into a HIPAA compliant database containing socio-demographic, geographic, reported risk behaviors and viral sequence information. The database will update itself in real-time as new HIV infections are identified, and viral sequence data will be used to map out the phylogenetic network of our local epidemic, focusing on drug using risk groups. We will utilize a background of nationwide HIV sequences obtained from publically available repositories to improve the signal in our phylogenetic structures and use Bayesian maximum likelihood analysis to build these networks in a robust manner. Finally, we will use this system to map the socio-demographic, geographic, risk behavior and phylogenetic data to locations of newly identified acute and early HIV infections. In real-time, these results will be used to identify micro-communities and sub-networks with HIV transmission associated with injection drugs or methamphetamine use, and we will use this information to direct community specific prevention resources (i.e. needle exchange, HIV testing, education, etc.) with the ultimate goal of preventing HIV transmission clusters from developing or expanding, particularly among substance using communities.

Investigator:	Theodore C. Friedman, M.D., Ph.D.
Institution:	Charles R. Drew University, Los Angeles, CA
Research Area:	Nicotine, Diabetes and Obesity, Liver, Nicotine Induced Weight Loss
Project Title:	Metabolic Effects of Nicotine: It Matters
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Computer skills (Excel, Word, and Powerpoint) are required, Molecular Biology and animal handling skills are preferred. For epidemiology and literature review projects, only computer skills are needed.

Project Description: Much remains unknown about the devastating consequences of cigarettes and the mechanisms of how nicotine, the main active compound in cigarettes, leads to these effects. We are especially interested in why smokers are lean, yet have high rates of diabetes and heart disease. We will have projects for students that could include working with animals, working with patients and working with databases. We will teach students about both drugs of abuse and metabolism such as diabetes and obesity. We will also teach students about second hand smoke and electronic cigarettes. Additional opportunities exist for PET scanning projects, clinical projects, literature review projects and epidemiology projects related to drug addiction. All experiments are well suited for student involvement and will introduce them to major techniques in substance abuse research. Housing is available at nearby California State University-Dominguez Hills and USC students will be given the opportunity to present at our annual Drew Substance Abuse Research Day. Many of our prior students have been authors of papers. As Dr. Friedman is also a practicing endocrinologist, opportunities to see patients with Dr. Friedman would also be available. Come enjoy a great summer in sunny Los Angeles and learn about drug addiction research.

Investigator:	Richard A. Rawson, Ph.D.
Institution:	University of California, Los Angeles, Los Angeles, CA
Research Area:	Addiction, Intervention and Implementation of Drug Screening Tools.
Project Title:	SBIRT for Substance Abuse in Mental Health Treatment Settings
Start Date, Program Length:	6/15/2014 -- 10 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Previous research experience is not required. The only preferred qualification is a desire to learn about substance use research. Students will not be required to work with animals, humans, and/or tissue samples.

Project Description: One of Vietnam's public health priorities is reducing the use of harmful drugs and getting people who need help into substance use treatment. This study uses an approach called "Screening, Brief Intervention, and Referral to Treatment (SBIRT)" in 3 HIV clinics in Vietnam which might be a promising strategy to address this growing issue. The study will evaluate how effective the SBIRT strategy is in reducing substance use and engagement in substance use treatment by recruiting 600 participants. A very important part of the study will include the implementation of an alcohol and drug use screening tool called the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) on a handheld tablet PC. The UCLA and Hanoi Medical University (HMU) research study teams will compare the effectiveness of taking the ASSIST on the tablet by oneself, or taking the ASSIST on the tablet with someone called a peer educator at the clinic.

Investigator:	Steven Shoptaw, Ph.D.
Institution:	University of California, Los Angeles, Los Angeles, CA
Research Area:	Medical, Behavioral, and Combination Approaches to the Prevention and Treatment of Chronic Illnesses, with a Particular Focus on Addiction and HIV
Project Title:	MSM and Substances Cohort at UCLA
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: The ideal student will be majoring in a biological or social science and have an interest in addiction and public health. CBAM works primarily in clinical settings with human subjects, so those interested in lab work should not apply. No previous research experience is required.

Project Description: The mission of the UCLA Center for Behavioral & Addiction Medicine (CBAM) is to advance the prevention and treatment of chronic illnesses, especially in communities with health disparities. Our research efforts include clinical trials and other research to treat addictions and prevent the spread of HIV. The cohort project looks at the relationships between non-injecting substance use and HIV, specifically in minority men who have sex with men (MMSM) - a population most severely impacted by HIV in the United States. We are assembling a cohort of MMSM that will be followed over time. We are collecting both behavioral and biological data to determine whether and how the use of stimulants and other substances impact HIV in this population. The summer intern will be assigned a writing project that will result in either a published manuscript or a conference presentation. S/he will conduct literature reviews and gain exposure to basic statistical analysis. S/he will be given extensive opportunities to meet with clinical and research staff in order to gain insight into the many aspects of our work. The intern will also attend external meetings with UCLA staff working within the community and with public health professionals to address issues surrounding substance use and HIV.

Investigator:	Mitchell D. Wong, M.D., Ph.D.
Institution:	University of California, Los Angeles, Los Angeles, CA
Research Area:	Social Networks and Adolescent Drug Use, Influence of Education and Education Environments on Adolescent Drug Use and Health
Project Title:	Social Networks and Drug Use among Low-Income Students in High-Performing Schools
Start Date, Program Length:	6/16/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Preferred qualifications of interns include strong interests in the impact of social factors, such as poverty, education and neighborhoods, on adolescent health and drug use. Spanish-language fluency is highly recommended. Students will be conducting field work (face-to-face interviews) in low-income neighborhoods of Los Angeles with adolescents and families and should feel comfortable working in these geographic areas. Strong mathematical skills, including some exposure to statistics is helpful but not required. Previous research experience is not required.

Project Description: Social networks are increasingly being recognized as an important factor influencing health behaviors, such as use of marijuana and other drugs among adolescents. While knowledge about how social networks influence behaviors is expanding rapidly, translating these findings into actionable health interventions or policies is difficult. However, the school environment may be a potentially modifiable factor that has a strong impact on social networks and on adolescent health behaviors. In this proposed study, Dr. Wong and his research team of health and education experts are studying the impact of successful public charter schools on social networks and marijuana use. Charter schools have rapidly multiplied in the U.S., primarily in low-income communities. While not all have been successful, many, particularly those run by larger charter management organizations, have been effective in raising academic performance. Two of the largest organizations, Green Dot and Alliance, have more than 30 schools in Los Angeles, serving several thousand low-income, minority students annually. These schools have graduation rates of 85-100% compared to 50% at nearby public schools, and significantly better academic outcomes compared to nearby public schools. Dr. Wong's research team is conducting a 4-year longitudinal study, sampling among 8th grade students who apply to one of several Green Dot or Alliance charter schools. They will compare those who are randomly chosen for admission to the school (Experimental Group) with those who are not selected for admission (Control Group). They are following these two cohort over four years exploring how social networks form and evolve over time and how they are related to marijuana use and other risky health behaviors in two very different academic environments. They are examining the impact of high-performing charter high schools on student's social networks and on use of marijuana and other risky behaviors (alcohol, tobacco and other drug use, sexual activity, and violence). They are also examining whether social networks acts as a mediator in the impact of these schools on marijuana use and other risky behaviors. The summer research intern will participate in several aspects of the project with the primary goal of exposing them to health services research. Dr. Wong will directly supervise the intern in developing a specific research question, analyzing data from the project, and completing a draft manuscript of the research findings. In addition, the intern will be exposed to health services research methods, including study design, data collection and data analysis. The intern will participate in team research meetings and have the opportunity to do field work with our research assistants in collecting survey data from low-income adolescents.

Investigator: Nurulain T. Zaveri, Ph.D.
Institution: Astraea Therapeutics, Mountain View, CA
Research Area: Discovery of Drug Abuse Treatment Medications, Pharmaceutical Drug Design, Drug Discovery
Project Title: Discovery of Bifunctional NOP/Opioid Receptor Ligands for Drug Abuse Therapy
Start Date, Program Length: 7/1/2014 -- 8 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Seeking undergraduate students who are preferably organic chemistry majors. Must have familiarity and be comfortable with organic laboratory synthesis. May be useful for applicants to have some understanding of biology, particularly cellular and molecular biology.

Project Description: Summer internships available for high school students and undergraduate who are preferably organic chemistry majors. The research in our laboratory involves drug design, organic synthesis, and medicinal chemistry of potential medications for drug abuse treatment. Hands-on experience in organic chemistry laboratory techniques desirable. The research project is multidisciplinary and involves collaboration with neuropharmacologists for *in vitro* and *in vivo* testing of the candidate compounds. Students will get experience with pharmaceutical drug discovery, and gain hands-on organic synthesis of small molecules that are designed to interact with specific target proteins involved in drug abuse. They will also get familiar with the concepts of medicinal chemistry and iterative structure-activity relationships. There will be opportunities to learn the process of pharmaceutical drug discovery. There will also be opportunities to learn computer-assisted drug design techniques. Students that are in a program with an organic chemistry major will find this a great learning experience for application of their laboratory skills for pharmaceutical drug discovery.

Investigator:	Joseph R. Guydish, Ph.D.
Institution:	University of California, San Francisco, San Francisco, CA
Research Area:	1) Access, Delivery, and Organization of Substance Abuse Treatment Services, Treatment Effectiveness, and Adoption of new Treatments Into Practice Settings; 2) Psychological Interventions to Address The Co-Occurring, Intertwined Epidemics of Stimulant Use
Project Title:	Marketing, FDA Communication, Tobacco Perceptions and Use in Addiction Treatment
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: We are seeking undergraduate students with declared majors in psychology, sociology, or cognitive science. Preferred student research interests include substance use, nicotine dependence, HIV/AIDS, and organizational behavior. Candidates who have completed an introductory statistics course are preferred. Students will participate in a summer research training program with other summer interns from across a wide variety of disciplines at UCSF. Summer interns will be expected to attend summer research seminars and participate in laboratory meetings. Students from underrepresented populations are highly encouraged to apply.

Project Description: Dr. Joseph Guydish leads the 2014 Summer Research with NIDA program at the University of California, San Francisco (UCSF). The program offers research opportunities for undergraduate students in the behavioral and social sciences and is aimed at those applying for a Ph.D. program. The goal of the 10-week program is to provide undergraduate students interested in substance abuse and health services research with advanced research experience in applied settings. Mentors are UCSF faculty who are affiliated with the NIDA-funded San Francisco Treatment Research Center, and who are conducting a variety of studies on innovative treatments for substance abuse, including nicotine dependence. Summer interns will gain exposure to the application of substance abuse research methods in real world treatment settings. Research projects include trials of efficacy and effectiveness of psychosocial and pharmacologic treatments of substance abuse and dependence including, a study designed to examine the use of tobacco products, marketing, messaging, and perceptions associated with those products, and their relation to tobacco use behavior in addiction treatment populations, a study of a positive affect intervention designed to optimize the effectiveness of contingency management to achieve long-term reductions in stimulant use and HIV viral load among HIV positive men who have sex with men, and a study that is developing, evaluating the feasibility of, and conducting a randomized, controlled clinical trial to evaluate the efficacy of a smoking cessation intervention for young adults delivered through Facebook. NIDA summer interns participate in UCSF Summer Research Training Program (SRTP), which consists of social and academic events with other summer interns at UCSF. The SRTP offers seminars to prepare students to become more competitive candidates for graduate education including panel discussions about the graduate school application process, life as a graduate student, and career options for researchers, as well as skill-building workshops focusing on abstract writing, oral presentation skills, and how to create effective poster presentations. Students also participate in a weekly journal club where they present a journal article relevant to their summer research project and lead a group discussion about the material, and a substance abuse seminar. Summer interns develop and conduct a research project using existing data, and present the results at the SRTP. Summer interns are also provided the opportunity to attend GRE preparation classes, if desired.

Investigator:	Linda C. Mayes, M.D.
Institution:	Yale Child Study Center, New Haven, CT
Research Area:	Impact of Addiction on Maternal Behavior and Child Development, Treatment for Substance Using Mothers
Project Title:	Maternal Brain and Behavioral Responses to Infant Cues in Cocaine Exposed Mothers
Start Date, Program Length:	6/2/2014 -- 8 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Interest in a career in substance abuse. Basic exposure to research skills with humans (e.g., overseeing a lab visit, interview). Major in psychology or neuroscience.

Project Description: This project affords a summer student research experience in the area of maternal drug use, understanding the impact of drug use on parenting and child development, and the effective treatments for substance using mothers. Maternal cocaine and other drug abuse is a significant public health issue particularly affecting children, with high rates of reported abuse, neglect and foster care placement. However, little is known about how cocaine exposure affects brain circuits involved in maternal behavior, especially in humans. Functional MRI studies have shown that in mothers, infant cues activate similar brain reward circuits to cocaine, suggesting common dopaminergic pathways. Maternal behavior is strongly influenced by oxytocin, an important neuromodulator and hormone, which may also be modulated by maternal cocaine abuse. Thus, natural infant-related reward stimuli and artificial stimulants such as cocaine may differentially affect neural development, affecting both dopaminergic and oxytocin systems. In one project that the student will participate in, we test whether maternal responses to infant cues are impaired in cocaine exposed new mothers, using 1) functional MRI, 2) videotaped mother-infant interaction, 3) peripheral oxytocin measures, and 4) attachment assessments. In this study, we hypothesize that cocaine exposed mothers will show significantly less activation of the prefrontal cortex and reward-associated brain regions, on viewing pictures of their own baby's face and cry cues vs. an unknown baby, compared to controls. In a second study (with Dr. Nancy Suchman), we examine the impact of attachment based treatment on maternal substance use and parenting behavior. The summer student will be exposed to the neuroimaging and behavioral assessments of substance using mothers. Further, the student will spend a significant amount of time in the treatment program for substance using mothers in order to better understand how substance abuse impacts parenting. The student will also participate in structured seminars and journal clubs focused on understanding the neurobiology of substance use and the development of substance use disorders. At the end of the summer, the student will produce both a research poster and will be a co-author on a manuscript emerging from the summer's work. Understanding how cocaine exposure interacts with other environmental factors to influence maternal behavior may help us both to better respond to addiction, and prevent long-term consequences in children—which may itself include an increased vulnerability to addiction.

Investigator: Patrick David Skosnik, Ph.D.
Institution: Yale University, West Haven, CT
Research Area: The Brain Correlates of Marijuana Use
Project Title: Default Mode and Control Brain Networks in Cannabis Dependence, and Abstinence
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: This research will involve brain imaging in human participants addicted to marijuana. Previous research experience, particularly with human clinical populations is preferred.

Project Description: Marijuana is the most commonly used illegal drug worldwide, and rates of its abuse have increased during the past twenty-five years. In fact, in the United States, individuals with disorders related to marijuana exposure are two times higher than for any other illegal drug. Given the large number of individuals who consume marijuana on a regular basis, a thorough understanding of its long-term effects on brain function is vitally important. The specifics of this project are as follows: Marijuana affects the brain by activating what are called cannabinoid receptors (CB1Rs). It is now known that long-term marijuana exposure decreases the number of these receptors. However, the implications of these changes remain unclear. This study will use functional magnetic resonance imaging (fMRI) and electroencephalography (EEG or brainwaves) to evaluate brain function in marijuana addicted individuals while smoking as usual, following brief (48 hour) confirmed abstinence (when marijuana withdrawal is most likely to occur), and after prolonged (4 weeks) confirmed abstinence. It is anticipated that this study will increase our understanding of the biological consequences of long-term marijuana use and its effect on brain function.

District of Columbia

Investigator: Laura Juliano, Ph.D.
Institution: American University, Washington, DC
Research Area: Nicotine and Tobacco Research Human Behavioral Pharmacology Research Tobacco Cessation Research Placebo Effects Research
Project Title: Placebo Mechanisms Underlying Smoking Behavior and Relapse Processes
Start Date, Program Length: 5/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Students with a strong interest in counseling or clinical psychology are encouraged to apply. All research is conducted with humans. Smoking takes place in the laboratory that is specifically designed for smoking. No prior research experience is required but students should be comfortable interacting with individuals of all ages from diverse backgrounds.

Project Description: The intern will participate in human laboratory research designed to examine placebo mechanisms that influence cigarette smoking, as well as the pharmacological, contextual, and individual difference factors that modulate their influence. In particular, interns will help to conduct a study that involves a 10-day smoking quit attempt. In this study, participants have an experimentally induced smoking lapse (i.e., smoke 2 cigarettes that vary in nicotine content) after the first 4 days of verified abstinence and their immediate and delayed reactions are assessed. Interns will recruit and screen participants, deliver brief smoking cessation advice, and run participants through the 10 day laboratory protocol. Interns will complete an on-line ethics course, do background reading, and attend lab meetings. Given the clinical nature of the study, students with a strong interest in clinical psychology are encouraged to apply.

Investigator: Joshua Corbin, Ph.D.
Institution: Children's National Medical Center, Washington, DC
Research Area: Brain Development, Genetics, Animal Models
Project Title: Genetic Mechanisms Underlying Mammalian Limbic System Development and Circuit Connectivity
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Undergraduates majoring in biology (or neuroscience) with a specific interest in neuroscience. High school students with interest in biology. Previous research experience is not required, most important qualifications is a willingness and interest in learning and working under the direction of a post doc. Interns may or may not work with live animals in their research experience, but regardless should feel comfortable being around animal research and working with tissue (brains, embryos) obtained from mice. No human samples.

Project Description: The limbic system of the brain regulates our emotions, social behavior and innate drives such as mating, feeding and aggression. The limbic system is comprised of a number of distinct brain structures such as the olfactory system, amygdala and hypothalamus. Dysfunction of this system is associated with human emotional and social disorders such as autism spectrum disorders. Using the mouse as an animal model, the Corbin laboratory studies how the genetic programs regulate embryonic and early post natal development of the limbic system and how this genetic information is linked to related emotional and social behaviors. Using this approach, the Corbin lab has recently identified specific genetic mechanisms that underlie the formation of complex amygdala neural circuits. To tackle these questions, the Corbin lab utilizes a variety of tools of modern neuroscience including manipulation of the mouse genome, optogenetics and animal behavior. Summer interns have the opportunity to be involved in projects that span a variety of techniques and are at the forefront of neuroscience research in a highly stimulating, interactive and collegial research environment.

Investigator:	Linda B. Cottler, Ph.D., M.P.H.
Institution:	University of Florida, Gainesville, FL
Research Area:	Recruitment of Multi-Generational Underrepresented Populations, Specifically Drug Users Into Research Studies, Prevention, Health and Social Services
Project Title:	Transformative Approach to Reduce Research Disparities Toward Drug Users
Start Date, Program Length:	5/27/2014 -- 8 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Seeking undergraduate students with interests in behavioral research, ethics, and/or the inclusion of underrepresented minorities in research. Students with a declared major in anthropology, psychology, sociology, social work, nursing, or other related fields are preferred. Summer students must be dedicated, reliable, curious, independent, solution-oriented, have good attention to detail, and be able to interact with members of the community.

Project Description: The Department of Epidemiology at the University of Florida has opportunities available for Summer Scholars interested in a challenging, yet rewarding, summer experience. The 2014 Summer Scholars will work on an ongoing NIDA research study entitled "Transformative Approach to Reduce Research Disparities Towards Drug Users." Summer Scholars will be involved in the third phase of this research, which involves the extension of the CTSA street-based outreach model to target people with recent illicit drug use and link them to our community-based outreach site, HealthStreet, where they can be connected with University of Florida research trials. Summer Scholars will gain experience and appreciation for the conduct of research by conducting literature reviews, participating in faculty/staff meetings, and assisting in both data collection and data analysis. More specifically, Summer Scholars will: learn about the outreach protocols utilized at HealthStreet by shadowing the Community Health Workers; screen potential study participants, through HealthStreet, and link them to open studies; test our newly developed web-based HealthStreet database; and develop educational materials for various audiences designed to dispel the myths associated with enrolling individuals with a history of illicit drug use in research studies. These activities, as defined, will serve as an introduction to drug abuse research.

Investigator: Sunmee Wee, Ph.D.
Institution: The Scripps Research Institute-Scripps Florida, Jupiter, FL
Research Area: Drug Addiction and Psychiatric Disorders
Project Title: Neurobiology of Vulnerability to Comorbidity of Cocaine Addiction and Depression
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: The student intern should be able to work with rats and mice. No previous research experience is required.

Project Description: My laboratory research focuses on investigating the neural mechanism of vulnerability to comorbidity of cocaine addiction and depression using rodent models of drug addiction and depression. Drug addiction and mental disorder frequently co-occur. Especially, adults with depression are more likely to abuse cocaine than healthy adults are. This relationship strongly indicates that cocaine addiction and depression utilize similar brain circuitry, which could potentially account for the comorbidity of these two conditions. This comorbid depression intensify and exacerbate addiction and vice versa, in an inescapable downward spiral. Accordingly, it is important to identify factors that simultaneously predispose to drug addiction and depression, as this may reveal an important target for effectively treating addiction in depressed patients. Based on the literature and our previous results, our current hypothesis is that hyperfunctional 5-HT_{1A} autoreceptor-GIRK channel signaling serves as a vulnerability factor to comorbidity of cocaine addiction and depression. To test this hypothesis, we are currently evaluating changes in the rewarding effect of cocaine and in the development of depression-like behavior in mice after 5-HT_{1A} autoreceptors are deleted in the brain of the mice. Additionally, we examine the effect of viral vector-mediated deletion of GIRK channels in the brain on cocaine taking behavior and depression-like behavior in mice. A NIDA summer intern, therefore, will assist a research associate in these experiments and is expected to learn rodents model of drug self-administration and depression and gene manipulating techniques. The summer intern should be able to work with rodents.

Investigator: Madhavan Nair, Ph.D.
Institution: Florida International University, Miami, FL
Project Title: Reactivation of Latent HIV Infection in Brain and the Role of Recreational Drugs
Start Date, Program Length: 6/1/2014 -- 8 weeks
Housing Available: Yes
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: The students should be high school-educated to graduate-educated, with an interest in drug abuse research.

Project Description: Studies on the effects of different drugs of abuse on immune responses in health and disease with special reference to HIV infection.

Investigator: Sari Izenwasser, Ph.D.
Institution: University of Miami School of Medicine, Miami, FL
Research Area: Neuroscience, Behavior, Drug Abuse in Adolescents
Project Title: Social and Environmental Factors in Adolescent Stimulant Abuse
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: Yes
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Must be willing to work with animals. An interest in factors that mediate drug abuse and in basic science. Some experience (or coursework) in biology, chemistry, psychology would be helpful for this project.

Project Description: Epidemiological studies have suggested that exposure to MDMA (Ecstasy, Molly, methylenedioxymethamphetamine) during adolescence is correlated with a high incidence of subsequent use of other drugs such as cocaine. Animal laboratory studies have shown that drug administration during adolescence leads to different neurochemical and behavioral adaptations than drug administration during adulthood and that the effects of drugs and the factors that mediate drug effects are different in males and females. In addition, both social and environmental factors have been shown to alter the use of illicit drugs by adolescents and drug use during this critical developmental period has long-lasting effects that persist into adulthood. Preliminary data show that (A) MDMA during adolescence, but not in adults, leads to increased reward associated with cocaine; (B) that social and environmental factors alter the effect of MDMA on cocaine reward in adolescents and (C) that the mediation of cocaine reward by social and environmental factors is different in male and female adolescents. The specific hypothesis of this proposal is that both social and environmental factors alter the behavioral effects of MDMA and the subsequent response to cocaine and that the behavioral and neurochemical adaptations that occur in response to social and environmental changes are sex-specific. These studies will provide information on the effects that environmental and social enrichment play on drug effects both in adolescence and adulthood. Currently, there is very little information on differences in the mediation of drug effects in males and females during adolescence. A better understanding of the specific effects of social and environmental factors on behavior and neurochemistry altered by MDMA and cocaine in male and female adolescents will lead to novel, possibly age- and sex-specific preventions and treatments for drug abuse.

Investigator: Carlos A. Bolanos, Ph.D.
Institution: Florida State University, Tallahassee, FL
Research Area: Psychopharmacology
Project Title: Neurobiological Effects of Social Stress on Mood Regulation and Nicotine Preference
Start Date, Program Length: 5/12/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: The project is design for undergraduates with minimum research experience. The student will handle animals (rat and/or mice), and work with tissue samples.

Project Description: This project will examine the long-term neurobiological consequences of social defeat stress or subordination during adolescence in male mice. Mice will be exposed to social stress during adolescence and behavioral and biochemical readouts will be assessed in adulthood. Additionally, this project will determine whether exposure to nicotine can enhance and/or serve as a buffer to ameliorate the long-term effects of social stress. Research fellows will be exposed to behavioral, anatomical, and biochemical techniques.

Investigator: Scott K. Okamoto, Ph.D.
Institution: Hawaii Pacific University, Honolulu, HI
Research Area: Drug Prevention Research
Project Title: The Development of a Video-Enhanced Drug Prevention Program for Rural Native Hawaiian Youth
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Seeking undergraduate students majoring in psychology, social work, public health, or another allied discipline. Students with knowledge and/or interest in rural, Native Hawaiian, and/or Pacific Islander populations are preferred. Students should have good communication skills and attention to detail. Students should also have an interest in the areas of drug prevention, health disparities, and health equity promotion. This project will require students to work with humans, but will not require students to work with animals or tissue samples.

Project Description: The 2014 Summer Research with NIDA program will focus on data analysis and manuscript preparation as part of a multi-year pilot/feasibility prevention study focused on rural Native Hawaiian youth and drug use. Summer Research with NIDA interns will assist the research team with analyzing data examining the short- and longer-term effects of the Ho'ouna Pono Drug Prevention Curriculum. Ho'ouna Pono is a school-based curriculum for middle/intermediate school youth on Hawai'i Island, and is aligned with the state and national academic standards. Interns may also help with preparing for video production and curriculum development as part of another related project, pending approval of funds from NIH/NIDA. This internship is a good fit for students who are interested in community-based participatory research with rural Hawaiian youth and communities.

Investigator: Marilou A. Andres, Ph.D.
Institution: University of Hawaii, Honolulu, HI
Research Area: Neurobiology and Genetics of Drug Addiction and NeuroAIDs
Project Title: Interaction of HIV-Tat and Methamphetamine: Role of Ion Channels and Epigenetics
Start Date, Program Length: 6/1/2014 – 10 weeks
Housing Available: Yes
High School Students: No
Undergraduate Students: Yes

Student Attributes: Undergraduate students with a major in Biology, Biochemistry, or Neuroscience preferred. Strong interest in genetics. Must be willing to work with human tissue samples and must have Hepatitis B vaccination prior to start date.

Project Description: Methamphetamine (METH) is an illicit drug commonly used (and abused) by HIV-infected patients. METH exacerbates HIV-related neurological impairments and brain injury. APOE4, a product of the APOE ϵ 4 allele, is a risk factor for Alzheimer's Disease. The APOE ϵ 4 allele is also implicated in accelerating the progression of HIV Disease. Our study is to investigate how APOE gene polymorphisms affect the nature of CNS injury in the presence of HIV infection and in combination with METH use. Our long-term goal is to elucidate the role of genetic variations and their effects on the brain in the presence of both HIV infection and the drugs commonly abused by these individuals. The objective of our research is to better understand the interactions between APOE protein, HIV-Tat protein and METH in promoting neuronal injury. The summer student will have an opportunity to learn about epigenetics and to investigate DNA methylation patterns of the APOE gene of post-mortem brain tissues of HIV+ and HIV + METH individuals who are carriers (ϵ 4+) and non-carriers of the APOE ϵ 4 allele (ϵ 4-). S/he will determine how methamphetamine use changes the DNA methylation patterns of the APOE promoter and exon 4 CpG islands in HIV-individuals who are ϵ 4+ and ϵ 4-.

Investigator:	Joshua M. Gulley, Ph.D.
Institution:	University of Illinois, Urbana-Champaign, Champaign, IL
Research Area:	Mechanisms of Age of Exposure-Dependent Differences in Drug-Induced Neuroplasticity
Project Title:	Mechanisms of Amphetamine-Induced Plasticity in Adolescents Compared to Adults
Start Date, Program Length:	5/16/2014 -- 8 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Preferred attributes include a general interest in the neuroscience of abused drugs, the effects of early life exposure to stress or stress-inducing experiences (e.g., drug exposure), adolescence, drug-induced neuroadaptation, and cognitive functioning. Majors in psychology and other neuroscience-related fields are preferred, as are students who are highly motivated, very attentive to details, and work well in a team environment.

Project Description: Dr. Gulley's laboratory studies the neurobiological and behavioral consequences of repeated exposure to psychoactive drugs such as amphetamine, cocaine and alcohol. In addition, they are interested in interventions that can enhance cognitive functioning, including nutritional supplementation. Examples of the research questions currently being addressed in the lab are: (1) Are adolescents, compared to adults, more sensitive to drug-induced changes in neural function and behavior? (2) Are there more adverse consequences when drug exposure occurs early in life and are there age-dependent differences in drug-induced neuroadaptations? (3) What are the neurobiological mechanisms that underlie individual differences in the behavioral response to drugs of abuse? (4) Can nutritional supplements serve to enhance cognition and/or delay cognitive declines associated with normal aging? Students enrolling in the summer research experience in Dr. Gulley's lab would be studying cognitive flexibility, decision making and impulsivity in rats exposed to amphetamine during adolescence or adulthood. These behavioral pharmacology studies would expose students to operant behavior techniques, pharmacological interventions, and behavioral analysis. Students would also get some exposure to *in vivo* electrophysiological techniques in freely behaving rats.

Investigator:	Abraham Palmer, Ph.D.
Institution:	University of Chicago, Chicago, IL
Research Area:	Mouse Behavioral Genetics
Project Title:	Systems Genetic Analysis of Methamphetamine's Motivational Effects in Mice
Start Date, Program Length:	6/15/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: The ideal applicant would have some wet lab and/or experience working with mice. Students with outstanding quantitative and computer skills are also highly desirable. Students will be expected to coordinate complex daily activities and to interact with multiple different lab personnel

Project Description: In this project the trainee would have an opportunity to be involved in a mouse genetics project directed at identifying genes that influence the sensitivity of mice to the stimulant effects of methamphetamine. In addition to working directly with animals (for trainees over the age of 18) there will be opportunities to process tissue samples and perform routine molecular biology protocols on DNA and RNA. Training may also be available in the organization and analysis of behavioral and genetic data. The laboratory will provide a dynamic environment that several graduate students and postdocs to provide day-to-day supervision of the trainee.

Investigator: Mary E. McCaul, Ph.D.
Institution: Johns Hopkins University School of Medicine, Baltimore, MD
Research Area: Nicotine Dependence, Pharmacotherapy, Brain Imaging
Project Title: Nicotine Dependence, Withdrawal and Replacement Therapy Assessed by PET
Start Date, Program Length: 5/1/2014 -- 8 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Prefer undergraduate intern with an interest in clinical research. Student will be working with human volunteers. Previous research experience is not required.

Project Description: While smoking rates have declined for both men and women over the last 20 years, rates among women have shown a much shallower decrease and, in recent years, more girls than boys have started to smoke. Smoking among women of child-bearing age has significant negative health consequences for mother and child, increasing fetal and infant diseases and death. Women are both less likely to try a quit attempt and more likely to start smoking again if they do quit. Nicotine replacement therapy (NRT or the nicotine patch) is still the most widely used smoking treatment in the United States, but it is less effective for women compared with men, and women report less craving reduction on NRT. The endogenous opioid system is involved in smoking initiation, nicotine craving and reward as well as nicotine withdrawal symptoms. Interestingly, research suggests that sex differences in the endogenous mu-opioid system may in part explain gender differences in nicotine effects. To better understand the role of the mu-opioid system in the reduced effectiveness of the nicotine patch in women, this work will examine NRT effects on the endogenous opioid system in female compared to male smokers during active versus placebo NRT. Behavioral measurements of nicotine reward, craving and withdrawal will be obtained repeatedly across the 4-day protocol. The summer research intern will have the opportunity to participate in subject assessment procedures, data collection of nicotine craving and withdrawal symptoms, data entry into research databases, and observation of brain imaging procedures.

Investigator:	Kevin P. Hill, M.D., M.H.S.
Institution:	McLean Hospital, Belmont, MA
Research Area:	Treatments for Marijuana Addiction
Project Title:	Nabilone for Cannabis Dependence: Imaging and Neuropsychological Performance
Start Date, Program Length:	5/1/2014 -- 8 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Students interested in the life sciences and willing to work with human participants are best-suited for our summer experience. Previous research experience is preferred, but not required.

Project Description: Participants in this summer research experience will be involved in a clinical trial aimed at developing a medication for patients addicted to marijuana. McLean Hospital, Harvard Medical School's freestanding psychiatric hospital, carries out important research to improve the care of patients with psychiatric and addiction problems. The trial is being conducted out of the McLean Hospital Behavioral Psychopharmacology Research Laboratory (BPRL), which has a long history of providing outstanding educational opportunities to undergraduate students. Patients have weekly visits that involve clinical assessments and laboratory tests. Patients also undergo functional imaging (a type of MRI) and neuropsychological testing while in the trial. Students will learn about all of these things from Dr. Hill and other staff from the BPRL. This patient-centered trial involves behavioral work geared toward students with interests in the social and life sciences.

Investigator:	Christopher W. Cowan, Ph.D.
Institution:	McLean Hospital (Harvard Medical School affiliated), Belmont, MA
Research Area:	Molecular and Epigenetic Regulation of Drug Abuse-Related Behavioral Plasticity in Rodent Models
Project Title:	Role and Regulation of Class IIa HDACs in Cocaine Addiction
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: No prior research experience is required, but is preferred. Research will likely involve working with rodents and rodent tissues. No high school students, please, but any level of undergraduate student with a strong interest in basic neuroscience research is appropriate.

Project Description: Identifying genes and factors that control how drug experience is translated to long-lasting aspects of drug addiction and relapse is a major goal of our research program. We recently found that a one family of genes, class IIa histone deacetylases (HDACs), regulates the rewarding qualities of cocaine, and our ongoing studies suggest that manipulation of these HDACs can influence not only the reward impact of cocaine, but also relapse-like behaviors of drug seeking after extended withdrawal from active drug taking. The summer projects would likely involve extending our ongoing rodent behavioral studies that seek to assess the impact of these genes, and their regulation in response to cocaine, on drug addiction-related behavioral changes.

Investigator:	Jane Liebschutz, M.D., M.P.H.
Institution:	Boston Medical Center, Boston, MA
Research Area:	Drug Abuse Prevention, Treatment in Primary Care Settings, Opioid Risk Reduction Strategies
Project Title:	Implementing Opioid Risk Reduction Strategies into Primary Care Practice (TOPCARE)
Start Date, Program Length:	6/2/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: This internship opportunity is perfect for a motivated, detail-oriented student with an interest in medicine or psychology and a background in biology or social sciences to gain hands on clinical research experience. Students with previous experience in clinical research and/or knowledge of research methodology are preferred. Students with a strong work ethic, interest in medical research, commitment to diversity, and sense of humor are required. Graduating or rising seniors preferred, but all undergraduate levels will be considered. Students of any background may apply. Underrepresented minority status is preferred per the aim of the NIDA scholarship, but all students are welcomed to apply.

Project Description: The student will work in the Department of Medicine at Boston Medical Center as part of a grant entitled "Implementing Opioid Risk Reduction Strategies into Primary Care Practice", also called TOPCARE. The goal of this project is to implement and evaluate a new model of care aimed at decreasing the misuse of and addiction to opioids among patients with chronic pain in primary care settings. The student may also assist with activities related to the Skin and Needle Hygiene Intervention (SKIN) project, a randomized controlled trial testing a psycho-educational intervention to decrease bacterial infections among injection drug users. TOPCARE is a five-year project including a randomized trial being implemented at 3 federally qualified health centers in the Boston area and an urban safety net hospital. During and after the 12-month intervention, the investigators will evaluate whether the intervention improved primary care physician adherence to the chronic opioid therapy guidelines and whether patients showed fewer signs of potential opioid misuse. The SKIN project is in its first year, and will be enrolling hospitalized injection drug users to offer motivational interviewing and education to improve skin and needle cleaning practices. Research assistants will interview study subjects throughout the 12 month follow up. Summer students will help the investigators during the heart of the randomized trial for TOPCARE. Their day-to-day duties will offer opportunities for clinical exposure in primary care settings focused on underserved urban populations as well as involvement in a productive clinical research group based in primary care. They may have the opportunity to administer research interviews to patients, and support the research team in the qualitative assessment of barriers and facilitators to intervention implementation. For SKIN, students may be trained in doing research assessments of the study subjects as well as help with all aspects of the trial. Students will attend weekly research meetings with the study investigators, conduct literature reviews, participate in the preparation of articles or presentations and assist with grant proposals. There is also a curriculum for medical students and other undergraduate and graduate students conducting summer projects including opportunities to observe addiction medicine and internal medicine clinicians. There may be other projects within the department of General Internal Medicine and the Clinical Addiction Research and Education Unit for the student to become involved with as his/her time and skills allow.

Investigator:	Margie Skeer, Sc.D., M.P.H., M.S.W.
Institution:	Tufts University School of Medicine, Boston, MA
Research Area:	Substance Use Prevention with Parents of 3rd-6th Grade Students, with a Focus on Parent-Child Communication
Project Title:	A Brief Substance Use Preventive Intervention for Parents of Pre-Adolescents
Start Date, Program Length:	5/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Prior research experience is not required. The intern should have an interest in public health and risk prevention, and in collecting information from people, including children. The summer intern will be working with human subjects and will be required to complete online training as part of the internship through the Collaborative Institutional Training Initiative (CITI). Many of the people in the study will be from diverse backgrounds. The intern must feel comfortable working with people from different cultures and backgrounds, and while not necessary, Spanish fluency is desirable. Additional preferred qualifications include:

- Ability to take responsibility for assignments and work both independently and as part of a team
- Ability to keep participant information private
- Professionalism, maturity, and a positive attitude
- Must have flexibility to accommodate schedules of working parents (some evenings may be required)
- Dependable, responsible, and well-organized
- Excellent written and verbal communication skills
- Solid computer skills and proficiency in Excel, PowerPoint and Microsoft Word

Project Description: Preventing adolescents from using and misusing substances is a national public health priority. Past prevention programs that have included parents have been effective in preventing and reducing substance use problems among their children, but the programs often require a lot of resources and time. Because of this, we developed The SUPPER Project (Substance Use Prevention Promoted by Eating family meals Regularly) and are testing it with parents/guardians and their children in Boston. This program, which focuses on parents/guardians talking to their children about alcohol and drugs, is unique because it is designed to be relatively quick and easy for parents to take part in. The goal of the study is that the children of parents who are in the group that receives the handbook and other study materials will eat more family meals together, talk to their children about substance use more often, spend more time talking with their children in general, and will be more aware of what is going on in their children's lives. The summer NIDA intern will work as part of the research team for The SUPPER Project. As part of the internship, the student will go to Boston Public Schools with other staff members to help recruit parents to participate in the study, and help give computer-based surveys to parents and children at the schools and at other locations around Boston. Some of these study visits may take place in the afternoon or evening when parents are finished with work. While at the office, the intern may be asked to help with the preparation of journal articles and grants related to the study or other projects, and to help with administrative tasks. This internship will require travel on public transportation around the Boston area. The team will try to make sure that the intern has a good summer experience by getting to work hands-on in substance use prevention and by taking advantage of opportunities to learn and grow.

Investigator:	Jacob M. Hooker, Ph.D.
Institution:	Harvard Medical School, Massachusetts General Hospital, Charlestown, MA
Research Area:	Chemistry, Chemical Biology, Neuroscience
Project Title:	Development of Tools to Understand Neurochemistry and Brain Function
Start Date, Program Length:	5/20/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Ideal interns will have an expressed interest in neuroscience with an affinity toward chemistry and biology. Students will have the flexibility to craft a research opportunity with a postdoctoral mentor, but it is likely that students will work with animals or tissues.

Project Description: The Hooker Lab uses chemistry, biology, and sophisticated imaging methods to develop insight into human brain function. Members of the lab are trained across disciplines and come from backgrounds including the basic and applied sciences (for example chemistry, physics, biochemistry, and neuroscience). Interns in the lab are paired with senior members of the research team on projects related to neurochemistry. Each mentor is chosen to complement the background and interests of the intern. While there is no 'typical' experience, interns have the ability to work in a wet lab environment, with animals, or even with human research subjects. The lab environment is positive and dynamic. Interns leave with an appreciation for how research is accomplished in an academic setting and with perspective on career paths such as graduate school.

Investigator:	Klaus A. Miczek, Ph.D.
Institution:	Tufts University, Medford, MA
Research Area:	Behavioral Neuroscience, Animal Models
Project Title:	Neuropeptides, Social Stress and Drugs of Abuse
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: - no allergies to animals

Project Description: Individuals differ in their propensity to seek and take drugs. We study individual characteristics that predict vulnerability to take drugs. We have developed model systems in mice and rats that allow identification of individuals who escalate their intake of cocaine. Our focus is on brain mechanisms that govern vulnerability to social stress. We investigate how neuropeptides such as Corticotropin-releasing factor (CRF) modulate neurotransmitters such as GABA, glutamate and biogenic amines such as dopamine and serotonin. These systems are studied in intricate neural circuits that mediate sensitivity to stress and drug taking. The CRF system has become a particular focus, since we discovered that blockade of one of the CRF receptor subtypes prevents the effects of social stress to escalate cocaine taking. *In vivo* methodologies allow us to study these chemical systems in the living brain while the animal is actually stressed and while it self-administers cocaine in real time. We consider it important to study both males and females, since the latter are more sensitive to social stress and take more cocaine. We also developed specific methodologies to study how social stress in adolescence promotes cocaine taking in adulthood.

Institution:	University of Michigan, Ann Arbor, MI
Research Area:	Optimization of Drug Efficacy
Project Title:	Drug Development for Rare Diseases
Start Date, Program Length:	5/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Interest in or experience with laboratory animals.

Project Description: Many serious diseases have no effective treatments. Insights from molecular, cellular and physiological studies together with experiences from past drug development efforts can be used to identify new strategies for the development of potential therapeutic agents. We attempt to discover and to characterize new therapeutic agents using such strategies. General laboratory information can be found at sitemaker.umich.edu/kerppola.lab.

Investigator:	Abigail Gewirtz, Ph.D., L.P.
Institution:	University of Minnesota, St. Paul, MN
Research Area:	Students will Participate in Research with Military Families - a Large-Scale Randomized Controlled Trial of a Parenting Program for Families in which a Parent has Deployed to War.
Project Title:	Effectiveness of a Web-Enhanced Parenting Program for Military Families
Start Date, Program Length:	6/2/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Students majoring in psychology or other social science majors are preferred. Students should have an interest in prevention/intervention research, enthusiasm and interest for working with military families, ability to work in a large team, have initiative and independence, and an interest in working with a "people-intensive" research study.

Project Description: This study is a randomized controlled trial of a prevention program to enhance parenting among military families with a parent deployed to a combat zone (Iraq or Afghanistan). Families with children ages 5-12 are recruited on a rolling basis with a total N=400. Students will be involved in different types of study activities. These may include: tracking online recruitment and conducting assessments in families' homes, including gathering observational data via video camera, self-report measures, and physiological (heart rate and vagal tone) data, and executive functioning measures. Students may also be involved in intervention activities (helping to coordinate the intervention, mapping out participant locations in order to identify intervention locations, assisting intervention facilitators, observing intervention activities where possible), as well as in recruitment activities, participating in outreach (in person and online) with National Guard and Reserve groups to inform families about the study. At the end of the summer, students have the opportunity to produce a poster for submission to a national conference, focused on study data, and related to their summer work.

Investigator: Laura Jean Bierut, M.D.
Institution: Washington University School of Medicine, St. Louis, MO
Research Area: Genetics, Heroin, Population Studies
Project Title: Genome-Wide Association Study of Injection Drug Use: A Multiethnic Study
Start Date, Program Length: 5/25/2014 -- 10 weeks
Housing Available: Yes
High School Students: No
Undergraduate Students: Yes

Student Attributes: Comfortable interacting with patients and research participants

Project Description: The goal of this project is to identify and characterize genetic determinants of heroin abuse in large samples of African-American and Caucasian injection drug users.

Investigator: Patricia Cavazos-Rehg, Ph.D.
Institution: Washington University School of Medicine, St. Louis, MO
Research Area: Substance Abuse in Youth, Intervention Studies, Policy Development, Media and Social Influences
Project Title: Policy and New Media Influences on Youth Substance Use Behaviors
Start Date, Program Length: June 1, 2014 -- 10 weeks
Housing Available: Yes
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Highly-motivated students are welcome to apply. The main criterion for admission is a strong interest in health behavior research.

Project Description: Substance misuse places a tremendous burden on individuals and society and remains high because so many youth initiate substance use at an early age and progress to dependence. When effective, population-level interventions (e.g. restrictions on tobacco advertising and on smoking in public places) can significantly scale down substance use behaviors. However, the environments in which youth learn about/access/consume substances have changed drastically, largely due to the rapid growth in the use of new social networking technologies. To keep pace and mobilize limited financial resources, research is needed to delineate the most efficacious policies that will reduce youth/young adult substance use involvement and account for today's new media-saturated environment. In my research program, my team investigates the outcomes of selected state-level penalties towards adolescent substance use behaviors (i.e., Possession/use/purchase tobacco laws, Use-and-lose alcohol laws, marijuana penalty provisions). These findings help to clarify the impact of these policies on youth substance use involvement. My research team also strives to further guide policy development by understanding how new media contributes to youth substance use behaviors. We investigate relationships between digital media consumption patterns and exposure to substance-related content via new media outlets (i.e., internet, social media sites, and text messages) with youth substance use behaviors/attitudes.

Investigator: Shilpa Buch, Ph.D.
Institution: University of Nebraska Medical Center, Omaha, NE
Research Area: NeuroAIDS and Substance Abuse, Research Program will Encompass Exploring Molecular Pathways Involved in HIV Protein and Cocaine Mediated ER Stress in Astrocytes
Project Title: HIV Tat & Cocaine-Mediated induction of Astrogliosis: Role of ER Stress in HAND
Start Date, Program Length: 6/15/2014 -- 8 weeks
Housing Available: No
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Prefer student with lab research experience but not mandatory. Student should be interested in science May involve working with animals but not humans

Project Description: The research project will include understanding the molecular pathways involved in cocaine &/or HIV protein mediated inflammation of astrocytes. Briefly, the student will perform experiments aimed at exploring how cocaine &/or HIV Tat exposure of astrocytes cell lines and primary rat cultures leads to upregulation of astrocyte activation with involvement of Endoplasmic reticulum stress markers and the role of the signature receptor Toll like receptor 2/4 (TLR2/4). Student will grow the cells, learn to isolate primary cultures of astrocytes from fetal rats and then expose the cells to either drug or the viral protein, Cellular extracts will be tested for upregulation of the astrocyte marker GFAP, by realtime PCR and western blotting assays.

Investigator:	Brad Donohue, Ph.D.
Institution:	University of Nevada, Las Vegas, NV
Research Area:	Applied Clinical Research
Project Title:	Family Behavior Therapy for Drug Abuse in Collegiate Athletes
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Research or career interests in applied clinical psychology, ideally specific to working with athletes.

Project Description: Substance abuse is both dangerous and highly prevalent in collegiate student athletes (SAs), leading it to be considered a Public Health Concern by leading researchers in the field. Although treatments have yet to evidence reductions in substance use in SAs diagnosed with substance abuse or dependence, Family Behavior Therapy offers great promise. In the proposed study we will evaluate the efficacy of this intervention in a controlled trial involving 157 SAs who are referred for problems associated with drug and/or alcohol use. FBT will target (a) illicit drug and alcohol use, (b) risk of HIV and STDs, (c) sport performance, and (d) co-morbid psychiatric problem behaviors. The controlled comparison will be conducted between FBT and "treatment as usual" (TAU), and include (1) use of a validated structured interview to formally diagnose substance abuse and dependence; (2) standardization and uniformity of treatment; (3) objective biological methods to assess the presence or absence of drug use, (4) validated measures to assess illicit drug and alcohol use frequency, clinical problem behaviors, problems in the relationships of SAs with peers, coaches, family and teammates, co-morbid psychiatric symptoms; and risk of HIV/STDs; (5) examination of the efficacy of FBT, as compared with TAU, utilizing assessors who are "blind" to treatment assignment (pre/post), and (6) 4-month follow-up to assess durability of study findings. The proposed study is expected to lead to a substantial paradigm shift in 1) development of substance abuse treatment within the burgeoning field of clinical sport psychology, 2) adoption of family-based models when treating substance abuse in campus counseling centers, and 3) establish a base in which to apply these concepts to new fields.

Investigator:	Sulie Chang, Ph.D.
Institution:	Seton Hall University, South Orange, NJ
Research Area:	(1) Bi-Directional Interaction Between Drug Abuse and Microbial Infection, including HIV, in the Central Nervous System; (2) Molecular Mechanisms Underlying Nicotine's Modulatory Effects on Learning Behavior in the Presence of HIV-1 Viral Proteins; (3) Age-Dependent Developmental Changes in the Neurotransmitter Systems of the Brain; (4) Alcohol Related Behavior Disorders in the Adolescent; and (5) Effects of Methamphetamine and HIV-1 Viral Proteins on Glial-Neuron Interactions
Project Title:	Glial-Neuronal Interactions Underlying the Molecular Feedback between HIV Viral Proteins and Methamphetamine
Start Date, Program Length:	6/15/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: For the high school student, the preferred qualifications include science major interests and biology/chemistry teaching laboratory skills. For undergraduate student, the qualification include college level biology/chemistry teaching lab skills and declared science majors. The research project will require the students to work with experimental animals and tissue samples. However, the previous research lab experience is not required.

Project Description: This research is to delineate the possible mechanisms underlying the increased abuse of substances, such as methamphetamine (METH), by individuals who are human immunodeficiency virus-1 (HIV)-positive. Specifically, this is to examine the synergistic effects of METH, an addictive psychostimulant, and HIV-1 viral proteins on glial-neuronal induction of inflammation in the rat brain. In the central nervous system (CNS), the glial cells are infected by the HIV-1 virus, causing neuroinflammation. Increased inflammation in the brain has been correlated with neurodegenerative diseases and behavioral disorders, such as HIV-1 induced neurodegeneration (HAND) and HIV-1 induced dementia (HAD). Moreover, METH abuse in the HIV-infected individual can lead to increased viral loads and severe brain-related disorders. For these studies, both the non-infectious HIV-1 transgenic (HIV-1Tg) rat and primary cell culture models are used. The HIV-1Tg rat carries a gag/pol deleted provirus gene, and expresses 7 out of 9 HIV-1 viral proteins. This HIV-1Tg rat develops clinical manifestations of human HIV disease, and, thus, mimics the infection that results from the persistent presence of HIV-1 proteins in HIV patients given anti-retroviral therapy. Recently, PCR array analysis was used to show that the pro-inflammatory cytokine, IL-1 β , as well as the Ccl2, Ccl3, and Ccl7 chemokines, are increased to a greater extent in the brain of the HIV-1Tg rat compared to the F344 control rat. In addition, there is elevated dopamine D1 receptor (D1R) expression in the prefrontal cortex of HIV-1Tg rats, and that these animals have greater METH-induced behavioral sensitization, as assessed by stereotypical head movement. Based on the literature and these previous data, it has been hypothesized that the abuse of substances, such as METH, in the presence of HIV-1 viral proteins, enhances glial activation, which affects neurons, and increases the activity of the dopaminergic system, thereby increasing the intake of METH. To test this hypothesis, two aims have been planned: 1) To determine the effects of METH and HIV viral proteins on glial and neuronal activation, neuroinflammation, and neurotransmitter modulation in the brain of the HIV-1Tg rat, and 2) To determine the effects of METH and HIV viral proteins on glial and neuronal activation, neuroinflammation, and neurotransmitter modulation in an ex vivo model using primary glial and neuronal cells isolated from the HIV-1Tg rat brain. Empirically, the glial-neuronal cell interaction in the brain of the HIV-1Tg rat with and without exposure to METH is examined using immunohistochemistry. Gene expression changes in neurotransmitter activity, in particular, the dopaminergic system, as well as neuroinflammation-related markers are examined. Primary glial and neuronal cells from HIV-1Tg rats are isolated for examining gene expression changes in the dopaminergic and other neurotransmitter pathways, as well as inflammation, and apoptotic and oxidative stress markers after *in vitro* exposure to METH.

This study is the first project to explore the effects of METH on glial-neuronal interactions and the subsequent effects on the dopaminergic system using the HIV-1Tg rat and primary cell cultures isolated from the HIV-1Tg rat. The data from this research will shed light on possible cellular and molecular mechanisms underlying the increased abuse of substances such as METH by HIV-positive individuals, and help to elucidate the glial-neuronal interactions associated with METH abuse and neuroAIDS. These studies are expected to lead to better treatment approaches that will ultimately benefit both HIV-1 patients and substances abusers. Thus, the proposed studies have high clinical relevance and will contribute significantly to the understanding and treatment of neurological complications associated with substance abuse, HIV infection, and AIDS.

The 2014 summer research projects for NIDA sponsored students will engage the students to (1) examine the METH-induced behavior sensitization in HIV-1Tg rats; and (2) study gene expression genes in primary neurons and microglial cells isolated from the HIV-1Tg rats given METH. In addition, the students will receive an on-going training of responsible conduct of research at the Institute of NeuroImmune Pharmacology (INIP).

New York

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Investigator:	Gregory G. Homish, Ph.D.
Institution:	The State University of New York, Buffalo, NY
Research Area:	Substance Use; Alcohol; Nonmedical Use of Prescription Drugs; Family; Marriage; Social Networks, Stress/Trauma; Reserve Soldiers; Intimate Partner Violence
Project Title:	Substance Use in Reserve Soldiers: Social and Environmental Influences
Start Date, Program Length:	6/1/2014 -- 8 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Students should be pursuing a degree in a health-related or social sciences field. Students should be interested in research related to health behaviors (e.g., substance use) among adults. Students should have the ability to work well in teams and have excellent attention to detail.

Project Description: This project will consider individual-level risk factors and the influence of social (e.g., partner/peer behaviors) and environmental (e.g., life stress) factors on changes in substance use in US Reserve Soldiers. Substance abuse is the most common health problem among veterans and substance use is linked to trauma, either in combat or at home. These issues are of heightened concern among the Reserve as they have more drinking problems and more interpersonal conflict relative to active duty soldiers post-deployment. With more than half of the Military currently married, it is important to examine the potential of a Reservist to influence, or be influenced, by his/her partner. Our previous research, and that of others, provides evidence that partner influences are powerful predictors of positive or negative changes in health. We also have found that peer networks are involved in changes in alcohol use among adults and that substance use shapes the peer network. Social/environmental influences may be particularly important for Reserve Soldiers and their partners as social networks change during deployments. These experiences are likely to strengthen the influence of a peer group, particularly if fellow soldiers are within one's peer networks post-deployment. Thus, the proposed study will examine within- and cross-partner influences and peer influences on the association between stress and substance use for Reserve Soldiers and their partners. This project will examine: 1) changes in substance use (alcohol, tobacco, and nonmedical use of prescription drugs) over time in Reserve Soldiers and their partners on the basis of individual (e.g., depressive symptoms), relationship (e.g., partner and peer substance use), community (e.g., workplace/deployments) and societal (e.g., norms) factors; 2) the relation between stress/trauma (e.g., combat exposure/life stress) and substance use; 3) how the integration of substance use into the relationship impacts marital aggression. Importantly, each member of the couple will provide independent data. The knowledge gained from this study will enhance the development of effective treatments that address the complex issues faced by military couples; some of which could generalize to civilian couples that face similar issues.

Investigator:	Perry N. Halkitis, Ph.D.
Institution:	Center for Health, Identity, Behavior & Prevention Studies, New York, NY
Research Area:	Mental Health, Substance Use and Sexual Behavior
Project Title:	Syndemic Production Among Emergent Adult Men
Start Date, Program Length:	6/2/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Prior research experience is not required. The students will have to work with humans, specifically young gay & bisexual men of color. Students must be at least 18 years of age to work with participants. Students must be open-minded, comfortable working with diverse populations, comfortable working with confidential information and very detail-oriented.

Project Description: The Center for Health, Identity, Behavior and Prevention Studies (CHIBPS) in the Steinhardt School of Culture, Education, and Human Development at New York University is a leading HIV, substance abuse, and mental health, behavior research center that is focused on the well-being of all people, including sexual, racial, ethnic and cultural minorities and other marginalized populations. Interns will be working on Project 18. This project is a longitudinal developmental study of risk and resiliencies in a sample of 18-year-old gay, bisexual and other men who have sex with men focusing on sexual behavior, substance use, HIV risk factors and mental health. Intern Responsibilities include: conducting participant assessments (which includes measures on: head injury, executive functioning, social supports, substance use and sexual behavior); quantitative data entry and cleaning; transcribing and coding audio recorded qualitative interviews; supporting research team in literature review, data compilation, and writing; and assisting senior researchers with projects.

Investigator:	Crystal Fuller, Ph.D., M.P.H.
Institution:	Columbia University, New York, NY
Research Area:	Drug Abuse and HIV Prevention Epidemiologic Research Focused on Social and Behavioral Factors Related to Knowledge, Awareness and Use of Post-Exposure Prophylaxis to Help Prevention HIV
Project Title:	Post Exposure Prophylaxis among IDU Syringe Customers - Pharmacy Pilot Intervention
Start Date, Program Length:	6/23/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Student intern should have interest in street-recruited heavy, illicit drug users and risk of HIV. Interests should also include delivery of structural interventions to help solve racial disparities in HIV and other related social and medical conditions. Previous experience with this target population is preferred but not required. Previous experience in conducted original data collection is also preferred but not required.

Project Description: The iPEPcare research study is a large-scale epidemiologic study conducted among active and former drug users, which includes a HIV prevention pilot study based in 3 NYC pharmacies registered through the Expanded Syringe Access Program (ESAP). ESAP is a public health program targeted to injection drug users (IDUs) which allows pharmacies to sell syringes without a prescription. iPEPcare research staff intern will assist with on-going training and support for pharmacy staff on participant recruitment and delivery of the pilot intervention services. Intervention services include provision of post-exposure prophylaxis (PEP), a 28-day antiretroviral medication regimen to help prevent HIV if potentially exposed to HIV within 36-72 hours. iPEPcare research staff intern will also interview IDU syringe customers (and other high risk individuals enrolled into the study) within a study pharmacy using audio computer-assisted self-interviewing (ACASI). The intern may also be involved with community engagement and participant recruitment which is conducted in small teams. The intern will report immediately to the iPEPcare research coordinators and project director. Finally, this opportunity has the potential for participating in the publication of manuscripts and/ or abstract submissions depending on the level of training the intern has at the time of placement.

Investigator: Larkin S. McReynolds, Ph.D., M.P.H.
Institution: Columbia University, New York, NY
Research Area: Implementation Research Focusing on Mental Health, Substance Use Screening, Assessment and Services and HIV Prevention for Youth Involved with the Juvenile Justice System
Project Title: Promoting Evidence-Based Screening, Assessment and Treatment for Mental Health, Substance Use, and HIV Risk for Youth in the Juvenile Justice System
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Interest in public health, epidemiology, or psychology. Previous research experience is not required.

Project Description: Assist a team of researchers in conducting a multi-site NIDA funded project conducting implementation research regarding youth in juvenile justice settings. The burden of unmet mental health and substance use need and HIV risk among youths in the juvenile justice system is alarmingly high. NIDA's Juvenile Justice - Translational Research on Interventions for Adolescents in the Legal System (JJ-TRIALS) Cooperative Agreement is a 5-year Cooperative Agreement (initiated July 2013) between six Research Centers (of which our center at Columbia University is one), a Data Coordinating Center, and NIDA. The Cooperative Agreement's overarching philosophy is that every adolescent in the juvenile justice system could benefit from evidence-based prevention and/or treatment interventions that target substance use, mental health, and HIV risk behaviors. Its primary goals are to: (1) Provide insights into the current state of mental health, substance use, and HIV prevention & treatment service delivery within the juvenile justice system (via a National Survey), (2) Improve delivery of Evidence-Based Practices addressing prevention and treatment services targeting substance use, mental health and HIV risk behaviors in community-based juvenile justice settings (via development of scientifically sound Study Protocols), and (3) Advance implementation science (via development and use of innovative Methods and dissemination of study findings via Publications). As this work is currently in the formative stages of development.

Investigator:	Jose Moron-Concepcion, Ph.D.
Institution:	Columbia University, New York, NY
Research Area:	Molecular Biology, Neuronal Plasticity, Opioids, Opioid-Related Pain Processes
Project Title:	Mechanisms Underlying Opioid-Induced Pain Sensitivity
Start Date, Program Length:	6/1/2014 -- 8 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Some experience in research is desired but the lab will provide will ample opportunities to get trained in research techniques. Students will be working with rodents and tissue from rodents.

Project Description: Abrupt abstinence or withdrawal from opiate drugs causes a series of severe adverse symptoms, which keep drug-dependent individuals craving continued opiates. One of the core of withdrawal symptoms is an increase in pain sensitivity (pain sensitization or hyperalgesia). This pain sensitization is due to synaptic plasticity, particularly in the spinal cord dorsal horn. Chronic pain is characterized by an increase in excitability in the dorsal horn, however the mechanisms underlying this increase are not fully understood. Small conductance (SK) Ca²⁺-activated K⁺ channels have been shown to control cell excitability in the brain, and there are some indications of these channels to be involved in nociceptive processes. Complete Freund's adjuvant (CFA) induced pain is a commonly used model for studying chronic inflammatory pain. We will use biochemical and immunohistochemical approach to investigate changes in the SK channel subunit expression and distribution in the dorsal horn of the saline- and CFA-treated animals. It has been shown recently that functional interactions between SK channels and excitatory synaptic receptors in the brain are involved in regulation synaptic plasticity. We will investigate a possible interaction between SK channels and glutamatergic receptors in the dorsal horn using western blotting and co-immunoprecipitation analyses. The results of this project will reveal if the changes in SK channels in the dorsal horn are involved in controlling excitability and/or synaptic plasticity in the dorsal horn neurons during chronic pain. Given the similarities between the mechanisms of chronic and morphine-induced pain, these experiments will also pave the path for studying the role of SK channels in morphine-induced hyperalgesia.

Investigator:	Judith S. Brook, Ed.D., Ph.D.
Institution:	New York University School of Medicine, New York, NY
Research Area:	Substance Use
Project Title:	Drug Use and Problem Behaviors in Minority Youth
Start Date, Program Length:	6/2/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Psychology or sociology major; a course or courses in research methodology; an interest in ethnic studies and research; some experience in working on a research project.

Project Description: The goal of our research is to investigate developmental pathways to substance use, dependence, and cessation, and to identify protective factors that will offset risks for substance use and dependence in adulthood. The sample includes African American and Puerto Rican adults who were interviewed at four points in time, from early adolescence to adulthood. The most recent wave of data collection aims to accomplish the following: 1) examine the interactions of risk and protective factors such as personality, family, peers, ecological context, acculturation/cultural values, and ethnic/racial identity as they affect the course of substance use/abuse/dependence, and 2) study the consequences of early alcohol and drug use and other problem behaviors in adult functioning. The intern will participate in a number of research activities, including data collection, data management, statistical techniques, developing hypotheses, literature reviews, and the preparation of manuscripts for publication.

Investigator:	Congwu Du, Ph.D.
Institution:	State University of New York, Stony Brook, NY
Research Area:	Neuroimaging, Cocaine, Neuropharmacology
Project Title:	Optical Neuroimaging to Study the Functional Change of Brain <i>In Vivo</i>
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Undergraduate students who are highly-motivated with research background in imaging, or experience with animal models or animal self-administration of drug are preferred

Project Description: Cocaine affects both cerebral blood vessels and neurons in the brain. Imaging technologies such as fMRI, PET, optical microscopy and near-infrared imaging have been used to assess the acute and chronic effects of cocaine. However, the mechanisms underlying cocaine's neurotoxic effects are still not fully understood, partially due to the technical limitations of current techniques to differentiate vascular from neuronal effects at sufficiently high temporal and spatial resolution. To solve this problem, we have developed a multimodal imaging platform by combining multi-wavelength laser speckle imager (MW-LSI) and optical coherence tomography (OCT). While MW-LSI provides a large FOV, high spatiotemporal resolution, and simultaneous mapping of hemodynamic, metabolic and cellular changes in responses to cocaine, OCT is capable of quantifying directional 3D CBF vascular network. This new imaging tool permits to distinguish the vascular versus the neuronal responses of the brain in response to a pharmacological challenge, thus complimenting other neuroimaging modalities (e.g., PET, fMRI) for investigating brain functional changes such as those induced by drug of abuse.

Investigator:	Kathryn Reissner, Ph.D.
Institution:	University of North Carolina, Chapel Hill, Chapel Hill, NC
Research Area:	Self-administration of Cocaine Leads to Modifications in Cellular Physiology and Neuron-Astrocyte Communication, Behavioral Analysis of Drug Seeking, Behavioral Pharmacology, Whole Cell Electrophysiology, and Molecular Biology
Project Title:	The Effect of Riluzole on Cocaine-Seeking Behavior
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: No prior experience is required for this position. Some background in neuroscience is a valued plus, but is not absolutely required. An interest in a future career in biomedical research is also a plus. However, a conscientious nature is absolutely critical. The successful applicant will be responsible for daily training of rats, and some processing of brain tissue at the end of the experiment. Work with live vertebrate animals requires attention to detail and the well-being of the animal. Further, as any minor modification of procedure can have considerable impact on behavioral results, consistency and careful following of procedures is key. The intern will be trained in all techniques, including rat handling, data analysis, relevant basic principles in pharmacology and cell biology, tissue histology, and some molecular techniques, including protein assays and Western blotting.

Project Description: Research in the Reissner lab is designed to investigate the role of neuron-glia interactions in the development of an addiction disorder. Specifically, the lab employs a rat model of addiction, in which each animal is able to control cocaine intake during daily self-administration sessions. After a period of approximately two weeks of self-administration, rats then enter a period of abstinence, for an additional two weeks. Craving following this extended abstinence is then measured in a behavioral cocaine relapse test, called a reinstatement test. Using this model, the lab is able to study behavioral measures of drug craving and seeking, molecular mechanisms for this craving, and also investigate treatments which may reduce craving and seeking. The specific project available for summer 2014 is to investigate whether riluzole (Rilutek, Sanofi-Aventis), an FDA approved drug for the treatment of amyotrophic lateral sclerosis (ALS), can reduce drug seeking in this behavioral model. The primary mode of action of riluzole is inhibition of voltage-gated sodium channels; however, riluzole has also been reported to function as an antidepressant, perhaps through its ability to increase expression of the astroglial proteins glutamate transporter GLT-1 and/or glial fibrillary acidic protein (GFAP) (Zarate et al, 2004; Banasr et al 2010). Because chronic cocaine experience leads to decreased GLT-1 expression, which has been suggested to represent a critical component of the mechanism for long-lasting drug craving, it is worthwhile to hypothesize that riluzole may also reduce drug craving. Thus, multiple doses of riluzole will be tested in both acute and chronic administration regimens, and effects on reinstatement behavior will be measured. This project allows for completion of a testable hypothesis within the time course of the summer, and also allows for some investigation of cellular mechanism responsible for any effect on reinstatement (e.g., levels of GLT-1 and GFAP expression). Training will include animal handling and behavioral analysis, as well as basic principles in pharmacology and molecular biology.

Investigator: Lisa M. Tarantino, Ph.D.
Institution: University of North Carolina, Chapel Hill, NC
Research Area: Behavioral Genetics, Quantitative Genetics
Project Title: Organismal and Genetic Networks in Drug Reward and Reinforcement
Start Date, Program Length: 5/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Students will work with animals and with controlled substances. A student with an interest in genetics would be preferred. Prior experience working with mice would be optimal, but not required.

Project Description: Almost all drugs of abuse increase locomotor activity when administered acutely. It has been proposed that initial locomotor sensitivity to a drug is related to addiction liability and represents immediate and long-lasting structural changes in the brain. The laboratory has tested 45 different inbred mouse strains for initial locomotor response to a single dose of cocaine. Significant behavioral variation due to both genetics and the environment was observed across strains. However, the initial study was limited by the use of a single dose and understanding the behavior in response to a wider range of doses would provide more complete information on inbred strain sensitivity to cocaine. In a follow up experiment, the lab is conducting a more complete dose response study in strains that showed little or no response to the drug and those that exhibited a large response. The study would involve injecting inbred mouse strains with various doses of cocaine and testing locomotor behavior in an open field apparatus. The open field is a large square enclosure surrounded by infrared arrays that measure distance in centimeters as well as the position of the mouse in the apparatus over the test period. The laboratory proposes testing at least 10 mice per strain for 7 inbred strains at 5 doses for a total of 350 mice. Approximately 50 mice can be tested per week so the project would take approximately 7 weeks to finish and the results will be compared to ongoing studies examining pharmacokinetics and drug self administration in the same set of 7 strains.

Investigator: Kirk Wilhelmsen, M.D., Ph.D.
Institution: University of North Carolina, Chapel Hill, NC
Research Area: Whole Genome Sequence Analysis and other Genetic Methodologies to Identify Genetic Factors that Contribute to Addictive Behavior
Project Title: Deep Sequencing Studies for Cannabis and Stimulant Dependence
Start Date, Program Length: 6/15/2014 -- 10 weeks
Housing Available: Yes
High School Students: No
Undergraduate Students: Yes

Student Attributes: The students that will benefit the most from working in our lab will have the ability to write scripts and code for data manipulation in a Linux environment.

Project Description: My groups collects whole genome sequence data from thousands of subjects with and without substance abuse. The goal of this project is to identify genetic factors that contribute to addictive behavior. The bulk of the work that we do is do develop the programs to analyze the vast amount of data that we collect. Summer students that work with us will work on writing the programs to perform genome analysis.

Investigator:	Christina S. Meade, Ph.D.
Institution:	Duke University, Durham, NC
Research Area:	HIV/AIDS, Drug Abuse, and Clinical Neuroscience
Project Title:	Effects of Cocaine and HIV on Decision Making Involving Potential Losses
Start Date, Program Length:	6/2/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: We are seeking undergraduate students with a background in psychology, neuroscience, or biomedical engineering who are interested in patient-oriented research. This position is ideal for students who are interested in pursuing graduate training in clinical psychology, clinical/cognitive neuroscience, or medical school. Students must be highly motivated and detail-oriented. They must also be highly respectful of, and feel comfortable working with, diverse populations. Interns may also be required to complete training in working with human research subjects and in maintaining patient confidentiality. Interns will work closely with the study coordinator and graduate students, but they will also be expected to work independently. Familiarity with IBM SPSS, a Linux/UNIX computing environment, and/or Matlab is beneficial, but not required. Applicants must be at least 18 years old by the program start date.

Project Description: Our laboratory conducts patient-oriented research that examines the impact of drug abuse on behavioral and clinical outcomes among individuals living with or at high risk for HIV/AIDS. Summer interns will have the opportunity to work on an ongoing study of about 100 patients that aims to identify neurobehavioral effects of cocaine dependence and HIV infection. Our current study combines structural and functional neuroimaging, neurocognitive assessment, and behavioral measures to assess the effects of cocaine dependence and HIV infection on neural processes underlying decision making. Specifically, we are interested in probing the neural circuits regulating impulsivity and risk/reward valuation, and their relationship to sexual risk behavior. We hope that this integration of behavioral and cognitive neuroscience will shed light on how HIV and cocaine dependence may interact to impact these processes, with potential implications for HIV transmission prevention and addiction treatment. Students should come prepared to work as an active team member in recruiting and enrolling participants, conducting literature reviews, and entering/managing data. They will work in a dynamic environment that bridges techniques from various fields related to our research topics, working directly with members of the Duke Global Health Institute, Duke Center for AIDS Research, and the Duke-UNC Brain Imaging and Analysis Center.

Investigator:	Katherine Pears, Ph.D.
Institution:	Oregon Social Learning Center, Eugene, OR
Research Area:	Preventive Intervention with Child Welfare and High-Risk Populations
Project Title:	Long-Term Effects of a School Readiness Intervention for Foster Children
Start Date, Program Length:	6/2/2014 -- 10 Weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Undergraduate students majoring in Psychology, Education, Sociology, or related fields with experience with and/or a high level of interest in working with high-risk children and their families. Students will have an opportunity to assist with data collection, learning several of our KITS assessment tools (including standardized tests of achievement, structured interviews about substance use knowledge and beliefs, standardized questionnaires and computerized tasks). Students would be required to complete training in working with human research subjects and in maintaining confidentiality. Previous research experience is not required.

Project Description: The Oregon Social Learning Center (OSLC), located in the Eugene-Springfield, Oregon metropolitan area, is a collaborative, multidisciplinary center dedicated to increasing the scientific understanding of social and psychological processes related to healthy development and family functioning. The Kids in Transition to School (KITS) project is a follow-up study of a randomized efficacy trial of a preventive intervention to enhance psychosocial and academic school readiness in foster children. The currently funded project will follow the children and families who have participated in the study through the end of the 5th grade, and some of the children into middle school, to examine intervention effects on school functioning (academic and socioemotional competence) and psychosocial functioning (drug-use risk behaviors, drug use, aggressive/antisocial behaviors, deviant peer association, and internalizing behavior). Students would have the opportunity to participate in a large scale research project, to observe how science is used to test effective interventions, and to participate in the behavioral assessment of participating children and families. They would receive training and experience in conducting the laboratory assessments that comprise the KITS evaluation. These include standardized tests of achievement, structured interviews about substance use knowledge and beliefs, standardized questionnaires, and computerized tasks to measure inhibitory control and risk-taking. Students would also have the opportunity to learn about and participate in the administration of the neurophysiological measures used on the project, including the collection of salivary cortisol. Finally, students could learn about preventive interventions for high-risk children and families being tested in other ongoing projects at OSLC.

Investigator:	Leslie Leve, Ph.D.
Institution:	University of Oregon, Eugene, OR
Research Area:	Children Risk Factors for Drug Use Siblings, Parenting Tools, Data Collection
Project Title:	Siblings Reared Apart: A Naturalistic Cross-Fostering Study of Young Children
Start Date, Program Length:	6/16/2014 -- 8 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Interest in pursuing graduate school in psychology or related field Interest in children and/or child development Students may have the option to work with human subject by conducting telephone interviews. However, this is not a requirement. Previous human subject experience is not required.

Project Description: In this research program, we are interested in the ways that families contribute to their children's healthy and successful development. We do this by studying the associations between aspects of child development (including peer relations, school behavior, problem behavior, and social skills) and aspects of the family (including parenting practices, marital relationships, economic resources, and substance use in the family). In this project, we are interviewing 200 families across the United States who are currently parenting a biological child who is 7 years old. We will conduct telephone interviews with the parents, and will also visit families in their homes to record some of their family interactions on digital media. We also have data on the child's biological sibling, and a goal of the study is to see how similar or different the two siblings are and how any differences relate to the parenting they receive. Students involved in the summer research internship will attend weekly meetings with our research team to discuss and problem solve issues we are having in the study, and hear information about our research findings. They will read an article a week related to the study purpose, and will review and practice the interview procedures under the mentorship of members of our research team. They will learn about and become familiar with the different aspects that are involved in a research study, such as IRB approval, recruitment, assessment, data management, and coding (but will not be expected to perform each of these activities). They will be encouraged to attend research talks given on campus throughout the summer in topics related to this research program.

Investigator:	Prasun K. Datta, Ph.D.
Institution:	Temple University, Philadelphia, PA
Research Area:	Epigenetics, Drug Abuse, Neuroscience, Molecular Biology, Biochemistry, and Electrophysiology.
Project Title:	Role of Epigenetics in Glutamate Transporter EEAT2 Regulation in Neuroaids
Start Date, Program Length:	6/1/2014 -- 8 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Undergraduate students majoring in Biology, Neuroscience, Molecular Biology, Biochemistry, or intend to major in one of these or a related major are preferred. Students must have a GPA above 3.1 and should have basic biology, chemistry, biochemistry laboratory skills, very good IT and communication skills. Students must be interested in drug abuse research and conducting basic research in the biomedical field. Students must be punctual, reliable, hard and independent workers, self-starters, have the ability to follow instructions. Previous lab experience with handling mice and human cells in culture is a plus. Student must view this as a research opportunity and not as a summer employment opportunity.

Project Description: Research in this laboratory is directed toward understanding the genetic and cellular mechanisms involved in expression of the predominant glutamate transporter EAAT-2 in brain astrocytes in the context of pro-inflammatory cytokines and opiates such as morphine. Using human fetal brain derived astrocytes and the mouse as a model and employing a combination of cutting-edge tools, the lab is currently exploring how epigenetic mechanism(s) modulate the expression of EAAT2 gene. A summer program in this laboratory will enable the student not only to learn basic molecular biology techniques such as cell culture, isolation and culture of astrocytes from mice brains and fetal brains, western blot analysis, real-time PCR but also cutting edge techniques as organotypic brain slice culture and electrophysiology. Trainees are teamed up with postdoctoral researchers to learn specific techniques and basic concepts of epigenetics and neuroscience.

Investigator: Wenzhe Ho, M.D., M.P.H.
Institution: Temple University, Philadelphia, PA
Research Area: Drug Abuse and Immunology of HIV/HCV Infection
Project Title: Drug Abuse, Host Immunity and HIV/HCV Infection
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: Prefer to have students with biology major, having a great interest in research (with or without experience, although research experience is preferred). Students should have attributes of paying attention to details, being a good listener, following instructions, getting along with others, and having ability to organize/present data. Students also have excellent communication skill, and are able to read and write in English.

Project Description: Dr. Ho's laboratory is using multidisciplinary approaches to understand virus-host interactions and the basic mechanisms that control virus replication and strategies for enhancing the innate immunity against viral infections, particularly human immunodeficiency virus (HIV) and hepatitis C virus (HCV, a major etiology of liver disease). Working closely with drug abusing populations in the regions of Philadelphia and China, the Ho laboratory is also investigating whether drugs of abuse such as heroin and methamphetamine have a cofactor role in promoting HIV and/or HCV diseases. Since HIV and/or HCV infection are frequently found in injection drug users (IDUs) and these two pathogens are likely to be responsible for the highest infectious disease morbidity and mortality rates among IDUs, Dr. Ho's laboratory is investigating the role of drug abuse in the immunopathogenesis of HIV and/or HCV diseases. In collaboration with the investigators from the University of Pennsylvania and Wuhan CDC, studies in the Ho's laboratory have shown that drugs of abuse such as opioids and methamphetamine impair antiviral functions of host innate immune cells (natural killer cells and CD56+ natural T cells) and facilitate HIV or HCV infection/replication. Current research in the Ho's laboratory is investigating the specific effects of opioids such as heroin and morphine on type 1 IFN-mediated intracellular immunity that control HIV or HCV infection and replication. In addition, to determine whether drugs of abuse (opioids and methamphetamine) and/or HIV impair the innate immunity in human neurons and compromise the efficacy of HIV treatment (HAART) is also a focus of Dr. Ho's research.

Investigator: Charles P. O'Brien, M.D.
Institution: University of Pennsylvania, Philadelphia, PA
Research Area: Psychiatry-Addictions
Project Title: Summer Research with NIDA at the University of Pennsylvania
Start Date, Program Length: 6/2/2014 -- 10 weeks
Housing Available: Yes
High School Students: No
Undergraduate Students: Yes

Student Attributes: research or career interests, course work or declared majors in health and behavioral sciences

Project Description: The program at The University of Pennsylvania has been designed to facilitate placements for undergraduate students who are not in close proximity to a participating NIDA grantee, and high school students who are in close daily commuting proximity of a participating NIDA grantee. Daily supervision through monitored activities, secured dormitory housing accommodations, and secured placement positions supervised by professional and responsible investigators, junior investigators, and staff are available. The Program is a 10-week, 40 hours a week placement, supervised by a Principal investigator, and a designated program Director. The program will consist of: (1) formal course work Psychiatry 105 coursework (Didactics) Diagnosis and Treatment of Substance Abuse MCAT and GRE Training classes (Optional); (2) participation in meetings - Weekly Speaker Sessions hosted by various investigators from the field; (3) data collection activities & data analysis, active research study preparation, including CRF work and assessments (may include patient contact); (4) laboratory experience/experiments include animal research; (5) library research; (6) group activities include mentor meetings and other group activities; (7) and final oral presentations. Additionally, the program provides mentorship to the participating students for the 10 week placement, in which Medical school entrance and other items are discussed.

Investigator: Yan Dong, Ph.D.
Institution: University of Pittsburgh, Pittsburgh, PA
Research Area: Neuroscience, Animal Models of Drug Addiction, Cocaine Studies, Molecular and Cellular Studies
Project Title: Cocaine-Induced Adaptation in NMDA Receptors
Start Date, Program Length: 7/1/2014 -- 10 weeks
Housing Available: No
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Participating ongoing research with senior graduate students or postdoctoral fellows

Project Description: Emotion and motivation are two basic, interlinked concepts in neuroscience, with ramifying connotations across psychology and philosophy. Thus far, neuroscience cannot yet provide coherent explanations for why some stimuli cheer us up whereas others make us sad, why my fishing trip to a picturesque river is given up in favor of typing this paragraph, and why reading and memorizing knowledge that used to be so boring for me as a kid become so rewarding after a 20-year of "habituation". Our long-term research goal is to understand the neural mechanisms underlying emotional and motivational responses. We focus on animal models related to drug addiction. Addictive drugs are among the most effective and efficient external stimuli that evoke the strongest emotional and motivational states. Once "hijacked" into the addictive state, an individual will be primarily motivated by an exceedingly strong emotional state, the drug-seeking/craving state. We hypothesize that strong incentive stimuli, such as experience of drugs of abuse, shift the emotional and motivational states by rewiring the neural circuits in the brain reward pathway. To test this hypothesis, we have been examining several novel forms of neural plasticity upon exposure to cocaine. Two related research areas are depression, which is characterized in part as a lack of motivation, and sleep, which modulates the emotional and motivational state across most species. These lines of research in the laboratory are currently carried out by several highly motivated young souls, who are equipped with a combination of molecular, cellular, electrophysiological, and behavioral expertise.

Investigator:	Carmen E. Albizu-Garcia, M.D.
Institution:	University of Puerto Rico Graduate School of Public Health, San Juan, PR
Research Area:	Developing Measures to Assess Potential Moderators Treatment Outcomes Among People with Substance Use of Disorder Contributed by Patient Attributes as well as by Providers' Attitudes Towards Drug Users and the Norms Adopted by Treatment Organizations
Project Title:	DIDARP at the Graduate School of Public Health
Start Date, Program Length:	5/26/2014 – 8 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Latino students with an interest in applying for undergraduate studies in social sciences (including pre-law), health sciences, communication, and social work.

Project Description: Our research program is addressing questions that will facilitate developing and testing interventions that increase the participation of people with a substance use disorder (addiction) in treatment for their condition as well as increase the likelihood that treatment participants are able to improve their health and their social functioning. Our program includes several projects funded under this initiative all of which are focused on determining how different important health conditions that frequently occur among individuals with a substance use disorder, such as Attention Deficit Hyperactivity Disorder and HIV, and other patient attributes such as perceiving oneself unworthy or incapable of changing a dysfunctional behavior (self-stigma), affect interactions with the treatment sector that result in less effective care and sub-optimal treatment outcomes. We are also very interested in determining to what extent treatment providers harbor negative attitudes towards drug users and how these in turn also affect the quality of care delivered and health status among those receiving treatment. Other projects in progress explore whether different models of delivering care for vulnerable populations (such as re-entering prison inmates) result in better and less costly care. Using our research projects as a platform, our program is also geared to help advance Latino students aspiring to develop a research career. Our internship experience includes training in skills such as bibliographic search, reading the research literature, developing conceptual frameworks, ethics in research, data entry, data gathering, and basic understanding of research results and their interpretation. Participants are expected to prepare and deliver a presentation at the end of the summer session addressing what they have learned and how it is contributing to their understanding of the social/health phenomenon under study and to opportunities as they approach deliberating about career options. We encourage students to continue their participation with us through research electives as undergrads and graduate students through arrangements in place with several programs at the U of PR and other academic institutions.

Investigator:	Arthur Riegel, Ph.D.
Institution:	Medical University of South Carolina, Charleston, SC
Research Area:	Neurotransmitters and Neuroregulators Modulation, Behavioral Self-Administration of Drugs of Abuse and Brain Slice Electrophysiology (Whole Cell Patch Clamp) in Conjunction with Calcium Imaging (Multi Photon), Optogenetics and Intracellular Uncaging
Project Title:	Cellular Regulation of Dopamine-Dependent Behaviors
Start Date, Program Length:	6/1/2014 -- 9 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Students should have an interest in brain neurotransmitters and neuroregulators, and be comfortable working with animals to perform surgeries or collect tissue. Prior laboratory experience is preferred. Preference would be given to student interested in behavioral and cellular mechanisms of addiction.

Project Description: This laboratory is interested in dopamine for its broad role in motor and motivational systems including cognition, attention and learning. They use experimental approaches in animals to investigate the synaptic brain circuitry tuned to support these behaviors. They also investigate the related neuroadaptive changes (synaptic plasticity), which may underlie prevalent diseases such as Parkinson's disease, psychosis, schizophrenia, and Tourette's syndrome. Addiction is a disease of abnormal habits or learned behaviors, Researching addiction provides unique insights into the mechanisms underlying learning and how they influence addictive behavior. Virtually all drugs of abuse, including cocaine, amphetamine, heroin and other opiates, alcohol, nicotine and volatile solvents activate dopaminergic systems in the brain. Current research in This laboratory utilizes *in vitro* electrophysiology (whole cell patch clamp), calcium neuroimaging and uncaging (flash photolysis) in combination with behavioral self-administration to better understand the role of dopamine in normal and abnormal brain function.

Investigator:	Gina Forster, Ph.D.
Institution:	University of South Dakota, Vermillion, SD
Research Area:	Behavioral Neuropharmacology
Project Title:	Neural Sensitivity to Stress During Drug Withdrawal
Start Date, Program Length:	5/17/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Previous research experience is not necessary but a strong interest and motivation to conduct research is necessary. Academic strengths in biology or psychology or a related field is also necessary. This work will require students to work with laboratory rats and tissue samples.

Project Description: Increased depression and anxiety during withdrawal from illicit drugs is thought to be a big factor in why many individuals will go back to drug use. The studies in the Forster laboratory test the idea that drugs of abuse like amphetamine cause changes in brain systems that control emotion and stress responses, so that when the drug is withdrawn, increased anxiety and stress responsiveness occurs. These experiments focus on the neural mechanisms that normally mediate stress responses and anxiety-like behavior in laboratory rats, how amphetamine alters these, and how we can target these mechanisms to reverse the negative consequences of amphetamine withdrawal on emotion and stress responsivity. The Forster laboratory members use a combination of molecular, neurochemical, pharmacological and behavioral techniques to study these research questions. The specific summer project a student can work on in the Forster Laboratory involves testing whether blocking stress-induced neurotransmitter in specific brain regions reduces anxiety-like behavior of rats undergoing amphetamine withdrawal. This project would involve student learning drug administration to animals, intracranial surgery and infusions, behavioral testing, neurochemical methods of measuring neurotransmitters, statistical methods and presenting research results.

Investigator: Russell W. Brown, Ph.D.
Institution: East Tennessee State University, Johnson City, TN
Research Area: Behavioral Pharmacology
Project Title: Nicotine and the Roles of Nicotinic Receptors in a Rodent Model of Schizophrenia
Start Date, Program Length: 5/15/2014 -- 10 weeks
Housing Available: Yes
High School Students: No
Undergraduate Students: Yes

Student Attributes: We would like to have students who have a career goal of being a scientist, but will also take students interested in professional fields such as medicine or pharmacy. All students working in my lab work with live animals (rats) along with tissue samples.

Project Description: Our research program is designed to investigate both biological and behavioral mechanisms of smoking in schizophrenia. We use a rodent model of schizophrenia to do this work. This model was created in our laboratory through the early developmental administration of the drug quinpirole to rats. Quinpirole is a dopamine D2 receptor agonist, meaning that it substitutes for the neurotransmitter dopamine at this receptor. When we perform this manipulation, the D2 receptor is increased in its sensitivity throughout the animal's lifetime, consistent with schizophrenia in humans. It is well-known that approximately 80% (8 out of 10) of schizophrenics smoke cigarettes, and they typically smoke heavily, with higher levels of nicotine in their system as compared to normal smokers. In addition, schizophrenic smokers typically report a poor quality of life and also typically die of complications from smoking much earlier than even normal smokers. Thus, our goal is identify these targets in this unique population. We perform several behavioral tests on these animals, including behavioral sensitization, conditioned place preference, and drug self-administration. Further, we use several neurobiological techniques, including microdialysis and ELISA. We currently have two PhD graduate students in the lab along with myself to train the student fellow on these techniques, and together, we will form a team to attempt to achieve our goals on this grant.

Investigator: E. Sherwood Brown, M.D., Ph.D.
Institution: The University of Texas Southwestern Medical Center, Dallas, TX
Research Area: Effects of Stress and Corticosteroids on the Brain
Project Title: Attenuation of Corticosteroid-Induced Hippocampal Changes
Start Date, Program Length: 6/2/2014 -- 10 weeks
Housing Available: No
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: High school or undergraduate students interested in majoring in psychology, neuroscience, or medicine who want to learn more about patient-centered research are preferred. Previous research experience is not required.

Project Description: The Psychoneuroendocrine Research Program focuses on two different areas: dual diagnosis (i.e., depression or bipolar disorders concurrent with medical illness or substance abuse) and the effects of corticosteroids on mood, memory and the hippocampus (a brain region involved in memory). We have an ongoing NIDA-funded project that uses neurocognitive testing and neuroimaging to test the efficacy of a medication that may block the effects of stress and corticosteroids on the brain. The project has implications for a number of illnesses including mood and anxiety disorders, substance use disorders, and dementia. The summer research student will be involved in day-to-day clinical research activities, observe mood and cognitive assessments, meet with the principal investigator regularly, and will have the opportunity to work on a publication.

Investigator:	Laura E. O'Dell, Ph.D.
Institution:	The University of Texas at El Paso, El Paso, Texas
Research Area:	Behavioral Neuroscience, Developmental Psychobiology, Sex Differences in Nicotine Use
Project Title:	Nico-teen: Mechanisms of Nicotine Reward and Withdrawal During Adolescence
Start Date, Program Length:	5/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: It is preferred that students have a background in Biology and Chemistry. The work involves the use of animals, so we are very careful that the students display a high level of respect and interest in working with laboratory research animals.

Project Description: This summer student will work in my laboratory as part of our Research Experience for Undergraduates (REU) program entitled, "SMART: Minds." Students will focus on studies related to the parent grant ("Nico-teen: Mechanisms of nicotine reward and withdrawal during adolescence"-DA021274). The projects will examine developmental differences to the behavioral effects produced by nicotine and withdrawal from this drug in male and female rats. They will learn to use place-conditioning procedures to assess the rewarding and aversive effects of nicotine across these groups. The student will present their work at the end of the summer at the local College Office of Undergraduate Research (COURI) Annual Undergraduate Research Symposium. The student will also be involved in studies comparing the rewarding effects of nicotine in adolescent, adult, and adult animals that were exposed to nicotine during adolescence using self-administration procedures. This project is directly from the parent grant and is will also be completed this summer. The students will be heavily involved in the data collection of this project and will learn valuable presentation skills. As part of the summer REU they will also receive training in bioethics and other professional skills. These projects are important for the overall hypotheses in the parent grant, and publication of this work will also allow the students to also improve their writing skills.

Investigator:	Kathryn A. Cunningham, Ph.D.
Institution:	University of Texas Medical Branch, Galveston, TX
Research Area:	Molecular and Behavioral Neuroscience of Addiction
Project Title:	Molecular and Behavioral Neuroscience of Addiction
Start Date, Program Length:	6/9/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Excitement about science; team player; preferred background in neuroscience, psychology, pharmacology, or behavioral science; understanding of the importance of animal research to advancing our understanding of addiction; wants to visit the great Lone Star State, and loves the beach!

Project Description: The project's goals are to uncover the mechanisms underlying drug-seeking behavior to characterize the bio molecular profile of addiction and uncover the path to designing new diagnostic and therapeutic approaches to addiction. Example questions: I. How does impulsivity cause vulnerability to addiction and relapse? The lab is designing, synthesizing and evaluating new medication candidates for suppressing these vulnerabilities. II. Can environmental enrichment provide molecular and behavioral protection against vulnerability to addiction and/or relapse? III. How can we improve diagnosis and treatment in addiction? The lab is using RNA microarray technologies to identify a blood biomarker panel for early and late cocaine and methamphetamine self-administration and early and late withdrawal. Once there is a biomarker panel, the lab will work with a company to develop diagnostic tests. The following methods will be employed: A. Observations of rodent behavior, locomotor activity, stereotypy, serotonin syndrome; B. Operant behavior, especially rat drug self-administration and reinstatement models; C. Virally-mediated gene transfer technologies; D. Protein biochemistry and mass spectrometry; E. RNA expression and quantification; and F. Drug discovery, design, synthesis and validation in cellular and behavioral models of new chemical moieties for addiction.

Investigator:	Lane Strathearn, M.D.
Institution:	Baylor College of Medicine, Houston, TX
Research Area:	Mother-Infant Attachment, Drug Addiction, Brain Imaging, Dopamine, Reward Processing
Project Title:	Maternal Brain and Behavioral Responses to Infant Cues in Cocaine-Exposed Mothers
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Human research. Prior research experience is not required.

Project Description: This project will use functional MRI to examine how drug exposed new mothers respond to their infant's face cues. We are enrolling mothers and their babies through a residential drug treatment facility, conducting interviews and videotaping mother-infant interaction. Infant face images are collected and edited for presentation within the functional MRI brain scanner during a subsequent visit. Students will be involved in running mother-baby study visits, videotaping mother-infant interactions, preparing baby face images and recorded cries for presentation in the brain scanner, and preprocessing brain imaging data. The Attachment and Neurodevelopment Lab at Baylor College of Medicine, consists of a post-doctoral fellow, graduate students and other undergraduate or high school students, who work together in preparing and conducting each research visit. For those interested, there will also be opportunities to conduct basic statistical analyses.

Investigator:	Michael J. Zvolensky, Ph.D.
Institution:	University of Houston, Houston, TX
Research Area:	Anxiety/Depression and Smoking Cessation
Project Title:	Integrated Smoking Cessation Treatment for Emotional Dysregulation
Start Date, Program Length:	7/1/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: A hard-working, mature good-natured person who is willing to work independently and jointly with a team.

Project Description: The AHRL-SUTC is a treatment, research, and training clinic affiliated with the American Psychology Association-approved UH Clinical Psychology Program. Our mission is to provide accurate evidence-based information and effective treatment for adults and youth suffering from anxiety and/or substance use disorders, or those desiring health behavior change (e.g., increasing fitness levels, maximizing athletic performance). Our work is aimed at health promotion, prevention, and evaluating the utility of interventions (often health behavior oriented) for anxiety-substance use disorders. Our approach attempts to view the person in the social-biological-environmental context in which he or she lives. We seek to help establish and successfully reach practical, meaningful, and realistic life and behavior change goals in an integrative fashion. We focus on anxiety-substance use behavior change as well as health behavior change (e.g., increasing exercise or fitness), consultation, assessment, and treatment in individual and group formats. In such work, we tend to emphasize 'present-oriented' approaches to learning and behaving (e.g., mindfulness, exercise) in order to facilitate positive adaptation and change. Specifically, in our substance use and addictive behavior work we often utilize harm reduction strategies, which represents a pragmatic approach to reduce the harmful consequences of drug use and other high-risk activities by incorporating strategies that cut across the spectrum from safer use to managed use to abstinence. The present training project involves a study that will provide important information regarding the potential efficacy and mechanisms of an integrated intervention for an at-risk group of smokers, namely those who have clinically significant anxiety and depressive problems. Identifying efficacious treatments for smoking cessation for such persons has considerable public health significance because cigarette smoking is the leading cause of death and disability in the United States (U.S.), contributing to over 440,000 deaths each year, and anxious/depressed smokers comprise an overrepresented group among smokers. Moreover, this study will guide advances in the theoretical conceptualization of the mechanisms involved in depression-anxiety-smoking relations.

Investigator: Carlos Paladini, Ph.D.
Institution: The University of Texas, San Antonio, TX
Research Area: Dopamine Neuron Physiology and Related Behavior
Project Title: Mapping Functional Inputs to Dopaminergic Neurons
Start Date, Program Length: May 1, 2014 -- 10 weeks
Housing Available: Yes
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: Willing to work hard in a laboratory environment, and interest in the underlying neurophysiology of dopaminergic neurons.

Project Description: Students will learn to perform experiments that determine the physiological function of identified inputs to dopaminergic neurons *in vitro*.

Investigator: Ashley Acheson, Ph.D.
Institution: The University of Texas Health Science Center, San Antonio, TX
Research Area: Adolescent Brain Development and Substance Abuse
Project Title: Relating Brain Maturation to Impulse Control and Substance Use Development
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: Yes
Undergraduate Students: Yes

Student Attributes: No previous experience necessary. Students who are interested in careers in psychology or medicine are most likely to be interested in this research, but all applicants are welcome. This research involves human subjects only.

Project Description: Adolescent alcohol and drug use is common and associated with both significant negative individual consequences and substantial costs to society. The purpose of this study is to identify neurobiological mechanisms underlying risks for, and consequences of, adolescent substance use using brain imaging techniques. It is hypothesized that the relatively later development of connections between the striatum and the prefrontal cortex is responsible for impulsive reward-focused behaviors often observed during adolescence. This may explain why adolescents are more vulnerable to substance use disorders and resulting cognitive impairments, and individual differences in the timing and degree of development in these areas may contribute to an individual's risk. The goal of this project is to identify relationships between brain maturation, impulsivity, and substance use across adolescence. Information gained from brain scans will include individual differences in brain development and connections before participants use alcohol or drugs; factors that can predict onset and severity of substance use; and how trajectories of brain development are affected by both family history of substance use disorders and adolescent substance use. This project integrates research on brain development, adolescent behavior, and substance abuse to advance understanding of risks and consequences of adolescent substance use. As part of this project, the student intern will be involved with daily data collection, preliminary data analysis, and guided readings. The intern will participate in data collection by attending imaging sessions with participants and administering behavioral tasks during the scans. The intern will also contribute to data analyses testing study aims. Finally, the student will participate in guided readings with faculty on neurobiology, neuroimaging techniques, substance use disorders, impulsivity, and relevant mental disorders.

Investigator:	Donald M. Dougherty, Ph.D.
Institution:	The University of Texas Health Science Center, San Antonio, TX
Research Area:	Alcohol/Drug Use and Impulsivity During Adolescence
Project Title:	Consequences of Adolescent Substance Use on the Development of Impulse Control
Start Date, Program Length:	6/1/2014 -- 10 weeks
Housing Available:	No
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Previous research experience is not required, though we are interested in students who wish to pursue careers in clinical research. Students considering careers in psychology or medicine are most likely to find this research matches their interests. All research will be behavioral in nature and will involve working with human subjects.

Project Description: Adolescence is a critical developmental period normally defined by an increasing ability to control impulsive behavior. Impulsive behavior includes things like acting out aggressively or making decisions without thinking about the consequences. Being more impulsive and having family members who have had problems with alcohol and drugs are both associated with a greater risk for substance use during adolescence. However, it is unknown whether poor impulse control contributes to, or is the result of, substance use. Additionally, it is not known how impulse control and substance use interact across adolescent development to produce negative outcomes. During a 5-year longitudinal study, we examine how preadolescent impulse control predicts, and/or later substance use involvement alters, impulse control development. This project includes a cohort of 386 boys and girls who joined the study at age 10 to 12 and did not use alcohol or drugs at that time. However, the majority of participants have at least one parent who has had problems with alcohol or drugs. The participants now range in age from 11 to 16. Substance use, stress, physical development, and impulse control were measured at study entry and are evaluated again every 6 months for the duration of the project. We will determine how impulse control differs in kids with vs. without family histories of alcohol and drug problems, and how preadolescent impulse control predicts substance use. Additionally, we will characterize impulse control development in normal adolescents, relate impulse control development to the progression of substance use involvement, determine relative influences of family history, substance use involvement, stress, and maturation on impulse control development, and determine the reciprocal relationships between impulse control and substance use involvement. This research will help us understand how impulsivity measured in childhood predicts patterns of substance use, and how substance use affects impulse control. As part of this project, the student intern will be involved with phone calls to participants, daily data collection, preliminary data analysis, and guided readings. The intern will participate in data collection by administering questionnaires and computerized impulsivity tasks. The intern will also contribute to data analyses testing study aims. Finally, the student will participate in guided readings with faculty to learn more about impulsivity, substance use disorders, and other relevant mental disorders.

Investigator: Ginger Lockhart, Ph.D.
Institution: Utah State University, Logan, UT
Research Area: Prevention Science
Project Title: Multimethod Mediation Analysis in Prevention Research
Start Date, Program Length: 6/1/2014 -- 10 weeks
Housing Available: No
High School Students: No
Undergraduate Students: Yes

Student Attributes: This position requires attention to detail, a positive attitude, good writing ability, and willingness to learn a new software. Background in psychology, with one statistics course, is preferable. We do not work with animals or humans.

Project Description: In this project, we examine ways of understanding how reports from multiple people (for example, parents, friends, and teachers) can be used to statistically measure how adolescents come to develop substance use problems. One problem with using multiple reports is that people often don't agree with each other when they're providing responses on questionnaire items. Working in our lab would mean learning the statistical methods that allow us to navigate this problem using a special software. It would also mean working on a publication with the Principal Investigator which will use these methods to explore how we can better understand the development of substance use problems in young people, which will ultimately lead to some answers about how best to inform prevention programs.

Investigator:	Karl G. Hill, Ph.D.
Institution:	University of Washington, Seattle, WA
Research Area:	Understanding Environmental and Genetic Contributions to the Development of Addiction
Project Title:	Gene-Environment Interplay in the Development of Drug Abuse, HIV Sexual Risk Behavior and Comorbid Problems
Start Date, Program Length:	6/15/2014 -- 8 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Seeking undergraduate students from disciplines such as psychology, social welfare, public health and allied disciplines. A strong interest in the topic of the grant and an interest in drug prevention are important. DNA and environmental data are already collected, and we are in the analysis phase. Although sophisticated research and statistical skills are not required, the students should be comfortable with a quantitative social science approach. These are among the skills that will be gained in the internship. Also, although not a requirement, there may be an opportunity for students to attend the annual Society for Prevention Research meeting.

Project Description: The Seattle Social Development Project (SSDP) is a long-term study that looks at the development of positive and problem behaviors among adolescents and young adults. J. David Hawkins founded the study in the early 1980s, and Karl G. Hill is currently the Principal Investigator. The SSDP study began in 1985 with 808 fifth-grade students from 18 elementary schools in the Seattle Public School District. These participants and their parents have been interviewed thirteen times, most recently at age 35. For the present gene-environment study, SSDP has partnered with two other longitudinal studies: the Raising Healthy Children Project (RHC, Richard F. Catalano, PI) and projects from the Minnesota Center for Twin and Family Research (MCTFR, Matthew McGue, and William Iacono, PIs). The goal of the study is to learn how, at different developmental periods, environmental factors might amplify or reduce genetic vulnerability to tobacco and alcohol problems. The genetic and environmental data have all been collected, and we are now in the analysis phase of the study. The student interns would join the SSDP team of 5 investigators and 4 doctoral students who would also help mentor their development. SSDP and RHC are two studies at the larger research center called the Social Development Research Group. SDRG is a nationally recognized, interdisciplinary team of researchers working to understand and promote healthy behaviors and positive social development among diverse populations. At SDRG, we conduct research on factors that influence development, develop and test the effectiveness of preventive interventions, and work with communities to design and adopt science-based solutions to health and behavior problems. The student interns will also benefit from becoming involved in the SDRG-wide community and activities.

Investigator:	Megan Moreno, M.D., M.P.H.
Institution:	University of Washington, Seattle, WA
Research Area:	Social Media Research
Project Title:	Using Media to Investigate Mechanisms of Behavior Change
Start Date, Program Length:	5/15/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Previous research experience is not required. Experience and confidence working with people and ability to discuss topics that may be stigmatizing, such as substance use, is preferred. No blood, animals or tissue samples required.

Project Description: The purpose of project is to understand the relationship of alcohol and substance references on Facebook to students' attitudes, intentions, and behaviors over the course of college. This information could contribute to improved screening for alcohol and substance use among this population and may ultimately reduce corresponding health problems. This study includes approximately 300 undergraduates from University of Wisconsin-Madison and University of Washington who began college in the fall of 2011. Participants complete yearly and prompted interviews regarding their substance use and social media use, and associations with social media displays are evaluated. The summer intern would be part of our team during the summer months, a busy time on this project as we interview all 300 participants over the course of the summer. This is an enjoyable time of data collection as we learn how the participants' attitude, intentions and behaviors have changed over the past year, and their reflections on these topics. We also assess what new trends in social media use and its influence may be part of our participant's experiences.

Wisconsin

Investigator:	David H. Gustafson, Ph.D.
Institution:	University of Wisconsin-Madison, Madison, WI
Research Area:	Implementation of Mobile Health Technology
Project Title:	Implementing Technology-Assisted Drug Treatment and Relapse Prevention in FQHCs
Start Date, Program Length:	6/15/2014 – 10 weeks
Housing Available:	Yes
High School Students:	Yes
Undergraduate Students:	Yes

Student Attributes: Previous research experience is not required. We seek innovative and creative individuals with an interest in technology.

Project Description: A grant from the National Institute of Drug Abuse (NIDA) is funding a project to study the use of smartphones to integrate drug abuse treatment into primary care at federally qualified health centers (FQHCs). FQHCs are safety net medical provider that offer services to patients regardless of their ability to pay or insurance status. This grant funds research into a system called Seva (a Hindi word that means "caring"). Seva consists of modules of self-education based on cognitive behavior therapy, a program of relapse prevention, and a reporting system for clinicians' use in managing their patients. The goal of Seva is to provide efficient, effective treatment for drug abuse while reducing the burden on FQHC staff. The study will examine the quality, speed, and impact of implementing Seva in three FQHCs using mixed methods analysis techniques (a combination of quantitative and qualitative data). This summer internship would be hosted by the University of Wisconsin's Center for Health Enhancement Systems Studies. The intern would conduct interviews and focus groups with patients and staff at a FQHC located in Madison, WI to assess the usability and acceptance of Seva, and assist in literature reviews.

Investigator:	Todd Molfenter
Institution:	University of Wisconsin-Madison, Madison, WI
Research Area:	Implementation Research
Project Title:	To Test a Payer/Treatment Agency Intervention to Increase Use of Buprenorphine
Start Date, Program Length:	5/20/2014 -- 10 weeks
Housing Available:	No
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: We seek students with good written, analytic, and oral communication skills as well as a passion for improving health service delivery. An interest in addiction services would be a plus.

Project Description: Student will be located in a multi-disciplinary environment that conducts organization change, evidence-based practice implementation, and technology adoption research. Participants will be asked to assist with data analysis, searches of the literature, and field analysis from our hands-on field trials. The primary health discipline research occurs within is addiction services research. Currently there are three students and one post-doctorate fellows active in our Center within the department of Engineering. We take process or systems approach to solving health problems and the guiding principle of our Center is no patient should have to suffer twice. Hence, we focus on making the disease the source of suffering and try to eliminate the suffering caused poor systems and clinical practices.

Investigator:	John Mantsch, Ph.D.
Institution:	Marquette University, Milwaukee, WI
Research Area:	Endocannabinoid and Adrenergic Involvement in Stress-Induced Relapse Using Rodent Reinstatement Models, Preclinical Rodent Studies, Stress, Addiction
Project Title:	Preclinical Neurobiological Research on Cocaine Addiction
Start Date, Program Length:	5/27/2014 -- 10 weeks
Housing Available:	Yes
High School Students:	No
Undergraduate Students:	Yes

Student Attributes: Applicants should have an interest in a biology-related field, ideally neuroscience. Prior research laboratory experience is preferred but not required. Research projects will involve the use of rodent (rat and mouse) models, so applicants should be comfortable conducting animal research. Applicants must be available over the period of the 10-week program starting on Tuesday, May 27, 2014 and ending on Friday, August 1, 2014.

Project Description: The selected students will work on preclinical research projects in a NIDA-funded research laboratory investigating the neurobiological mechanisms through which stress contributes to cocaine addiction and will participate in the Biomedical Sciences Summer Research Program (SRP) in the College of Health Sciences at Marquette, which is directed by the PI on this proposal (JRM). Students will engage in mentored research in a translational neuroscience laboratory on projects involving the use of preclinical animals (rat and mouse) designed to promote our understanding of addiction and potential treatments. The Biomedical Sciences SRP is a competitive summer program for rising sophomore, junior, and senior undergraduate students with interests in biomedical research. Participants in the program receive a summer research stipend for participation in the 10-week, 40-hr per week program. As part of the program, students conduct biomedical research in the laboratories of participating faculty mentors, which include six researchers with addiction-related programs, and present their research findings at a formal symposium upon the program's completion. The program also includes a number of scientific, educational, and social activities, including a weekly faculty ment seminar series, weekly data discussions, and a 2-day lecture and dissection mini-course sponsored by the Department of Biomedical Sciences at Marquette University entitled, "The Human Brain".

CONTACT

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