



a Celebration of  
**Scholarship**  
EDINBORO UNIVERSITY

*March 29, 2017*

## Welcome: Qun Gu

March 29, 2017

Dear Students, Faculty, Staff, and Guests,

I am pleased to welcome you to Edinboro University's fourth annual *Celebration of Scholarship*. This event is designed to showcase a variety of student-faculty accomplishments in research and other forms of collaborative scholarship. Our students have a wide variety of opportunities open to them as they pursue their degrees. One of the most exciting of these is the chance to collaborate with our outstanding faculty and their fellow students. The *Celebration of Scholarship* gives us the opportunity to recognize the hard work and accomplishments of our students and their faculty mentors and to connect with students and faculty from across the university. While immersing ourselves in your own departments and academic interests we sometimes miss opportunities to expose ourselves to the many outstanding accomplishments occurring across campus. Creating an opportunity to recognize our students, their mentors, and their accomplishments is one of the most rewarding aspects of my position as chairperson of the COS planning committee. Thank you to all of you who put in the long hours necessary to make Edinboro a vibrant university with exceptional students, colleagues, and staff members.

Enjoy the 2017 *Celebration of Scholarship!*

Qun Gu, Ph.D.

Associate Professor of Chemistry

Edinboro University of Pennsylvania

Chairperson: Celebration of Scholarship Planning Committee

## Acknowledgments

The Celebration of Scholarship Committee would like to thank:

### Reviewers

Dan Bennett	Patricia Neff Claster	Sam Claster	Qun Gu	Joyce Jagielo
Jingze Jiang	Richard Lloyd	Susan Maloney	Tim Meyer	Greg Morrow
Denise Ohler	Bill Pithers	Doug Puharic	Jane Puhlman	Mike Skelly
Eric Straffin	Molly Wolf			

### Judges

#### Celebration of Scholarship Awards

Dan Bennett	Patricia Neff Claster	Sam Claster	John Cussen	Matt Foradori
Qun Gu	Wayne Hawley	Richard Lloyd	Monty McAdoo	Anthony McMullen
Mary Jo Melvin	Greg Morrow	Doug Puharic	Jane Puhlman	Thaddeus Rada
Eric Straffin	H. Fred Walker	Richard White	Molly Wolf	

#### Provost's Choice Award

Provost Michael Hannan	Dean Scott Miller	Dean Denise Ohler
Dean Erinn Lake	Judith Kubeja	

#### Additional Thanks To:

- Dr. Joyce Jagielo, Dr. Gregory Morrow: Program Editors
- Dr. Joyce Jagielo: Abstract Review and Judge Coordinator
- Dr. Michael Hannan and the office of the Provost for the Provost's Choice Award prize.
- Dr. Denise Ohler for the prizes for the College of Science and Health Professions Award prizes.
- Dr. Scott Miller for the prizes for the College of Arts, Humanities and Social Sciences Award prizes.
- Dr. Erinn Lake for the prizes for the School of Graduate Studies and Research Award prizes.
- Mr. William Berger for assistance in designing the program and the COS logo.

#### Celebration of Scholarship Planning Committee

Qun Gu (Chair)	Joyce Jagielo (Co-Chair)	Gregory Morrow	Samuel Claster
Amy McClune	Eric Straffin	Patricia Claster	Judith Kubeja
Dan Bennett			

## Schedule

**12:00 to 1:00** Poster Setup

**1:00 to 3:00** Closed Reviewing

**3:00 to 5:00** Poster Exhibition/Judging

**5:00 to 5:30** Light Refreshments

**5:30 to 6:00** Program Closing and Presentation of Awards

- Welcome: Dr. Michael J. Hannan, Provost
- Awards

All activities take place in the Multipurpose room of the Pogue Student Center.

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## College of Arts, Humanities and Social Sciences

### STUDENT VOICES: THE IMPACT OF A WRONGFUL CONVICTIONS COURSE

Justin Ransel, Justin Huffman, Deborah Vegh, Theodore Yeshion

*Criminal Justice*

Project Advisor(s): Deborah Vegh

Erroneous convictions and exonerations within the criminal justice system have become an area of intense interest within the last decade. Research on the perceptions and attitudes of the public is in its infancy. Studies have demonstrated that undergraduate students view wrongful convictions as a major issue within the criminal justice system (Vegh, Feely, Wilson & Yeshion, 2016; Ricciardelli, Bell, & Clow, 2011). A recent article discusses the advancement of a wrongful convictions course within criminal justice curricula via its relevance given overall objectives of criminal justice education and an overview of effective wrongful convictions course (Henry, 2014). Building upon Henry's (2014) article, this qualitative, exploratory research specifically focuses on undergraduate students' insights into a wrongful convictions course. Using data collected over 3 semesters of a wrongful conviction course, this study attempts to delineate common themes regarding the impact of the course on the enrolled students. A total of 64 responses were collected as part of a cumulative final exam for the course. Among the questions posed were: Did the course bring out certain emotions? Did the course change your views on the criminal justice system? Lastly, did the course affect your opinion of the death penalty? Researchers used content analysis techniques and inter-rater reliability at 90% when discerning thematic content. Discussion of the findings will be provided, including the utility of a wrongful convictions class.

Poster  
CAHSS-1

### UNDERGRADUATE STUDENT'S PERCEPTIONS OF HYDRAULIC FRACTURING

Nicholas Pistory

*Sociology*

Project Advisor(s): Patricia Cluster

Growing development of hydraulic fracturing across the United States has increased the number of studies that are being conducted that look at individual's perceptions of hydraulic fracturing. These previous studies have looked at how sex, political views, education, geographical location and age affect an individual's perceptions of hydraulic fracturing with mixed consensus. With this increase in research on perceptions of hydraulic fracturing there has been very limited work on how students perceive hydraulic fracturing. This study looked at undergraduate student perceptions of hydraulic fracturing. The findings of this study suggest a complex relationship between student perceptions of hydraulic fracturing and age, sex, political views, geographic location, family connections to hydraulic fracturing, and knowledge of hydraulic fracturing.

Poster  
CAHSS-2

## College of Science and Health Professions

### QUANTITATIVE ANALYSIS OF TARTRAZINE IN VITAMIN SUPPLEMENTS AND FOOD PRODUCTS

Elizabeth Higgins, Katelyn Greene

*Chemistry*

Project Advisor(s): Qun Gu

Tartrazine, also known as FD&C Yellow #5, is used as a coloring agent in many medications, supplements, food, soft drinks, cosmetics, and personal care products. It is a bright yellow dye that is either used alone or mixed with blue dyes in order to create green. Reportedly, tartrazine causes allergic and intolerance reactions, particularly among people suffering from asthma and aspirin intolerances. It is also believed that tartrazine is linked to anxiety, migraines, skin rashes, and ADHD. Although food regulation authorities in Europe and in North America do not ban tartrazine, further testing is recommended for its potential health impacts. This project focuses on determination of tartrazine content in selected vitamin supplements and food products such as yogurts and soft drinks. Tartrazine in samples will be extracted using optimized solid phase extraction methods, followed by analysis using Gas Chromatography-mass spectrometry and High Performance Liquid Chromatography. The best analytical method for each sample matrix will be determined by comparing the results from the two techniques.

Poster  
CSHP-1

### USING THE LENA TO EXAMINE THE INFLUENCE OF SIBLINGS ON A CHILD'S EXPRESSIVE LANGUAGE DEVELOPMENT

Makayla Gosser, Jolene Choby

*Speech, Language and Hearing*

Project Advisor(s): Jane Puhlman

It has been thought that children with older siblings will have delayed language development compared to their older brother or sister. The delay in language may be due to the older sibling talking for them or divided parental attention resulting in less time for individual attention. Relatively recent research however, found that there may be in fact positive language benefits to having an older sibling (Prime & Paul, 2014). In this study, only receptive language, or the language the child understands was measured. This study seeks to measure the expressive language benefit from having siblings.

Using audio files of 25 children (ages 2-4 years) pre-recorded from a larger study, the quantity (number of words) produced during play was first examined. Children were then separated into 3 groups 1) no siblings 2) has older sibling 3) has younger sibling (only). The quantity of the children's language across these three groups was compared. The results and clinical implication of the study findings will be discussed.

Poster  
CSHP-2



## DETERMINATION OF NICOTINE CONTAINING PRODUCTS BY SOXHLET EXTRACTION AND GC-MS

Sarah Hasenflu, Danielle Johnson, Naod Kebede

*Chemistry*

Project Advisor(s): Naod Kebede

This study deals with the extraction of compounds from tobacco products using soxhlet extraction. Effect of polar (methanol) and nonpolar (hexane) solvent were taken into consideration, along with the amount of time the soxhlet extraction ran. In this study, it was found that the nonpolar solvent resulted in the efficient extraction of nicotine from the samples. Many of the other compounds extracted were better when using a polar solvent.

Poster  
CSHP-3

## PERCEPTIONS OF SAFETY AND ANXIETY IN PUBLIC PLACES

Joseph Ray, Paige Skinner

*Psychology*

Project Advisor(s): Ron Craig, Greg Morrow

With increased awareness regarding the topic of police use of force, it is important to examine the impact of the physical presence of police on individual's perceptions of safety and anxiety. Rohal and Remish (2016) presented a series of photographs to students of scenes with and without uniformed police presence. Participants indicated how safe and comfortable they felt if they were the individuals in the picture. No significant differences in anxiety or fear were associated with the police presence. There were, however, increases in perceptions of safety. The current study will attempt to replicate the work of Rohal and Remish (2016) with a new set of stimuli, while monitoring participants' visual behavior via eye tracker. In addition, the Perceptions of Police Scale (POPS) (Nadal & Davidoff, 2015) will be used to assess perceptions of police. Photo stimuli of six separate scenes were developed varying the presence of a uniformed officer (a total of 18 photographs). Participants viewed six images, one from each scene, varying the presence of a uniformed officer. Participants viewed each of the six photos, and after each one rated how safe and how anxious they would have felt in the situation. The eye-tracker collected visual data from each participant (length of gaze, pupil size, & latency), while looking at each image. These variables provide objective indicators of fear and anxiety. Finally, participants completed the POPS survey and provided demographic information. Data will be analyzed for differences in perceptions of safety and anxiety and visual responding based on uniformed officer presence. In addition, relationships between participant characteristics and perceptions of safety and anxiety will be examined. Results will be discussed in relation to both Rohal and Roth's original study and current perceptions of law enforcement.

Poster  
CSHP-4

## EXPLORING SITE LOCATIONS FOR A WATER WELL AT MORAINE STATE PARK, USING SEISMIC GEOPHYSICAL TECHNIQUES

Walter Haines, Tamara Misner, Eric Straffin

*Geosciences*

Project Advisor(s): Tamara Misner

The purpose of this research was to identify a location for a new water well within Moraine State Park. The Department of Geosciences Applied Geophysics class was contacted by the PA State DCNR to help locate a feasible well site using noninvasive geophysical techniques. These techniques are more cost effective and have minimal impact on the environment compared to exploratory drilling. The best site for a high yield water well would be in thick layers of sand and gravel. The geology of the area is comprised of relatively impermeable bedrock overlain by glacial till, and more porous and permeable glacial outwash.

A 46 meter long seismic refraction survey was conducted along the western boundary of the Park. The survey line was oriented north to south using 24 geophones and seven shot locations. After field work was completed the data were processed using SeisImager software. A velocity model was produced and the geologic setting was interpreted.

The velocity model indicates that the depth to bedrock was greater than the depth of the survey, and the general stratigraphy was unsaturated glacial till. This study suggests that sediment is thick enough to accommodate a water well in this area, but an exact location would require further investigation.

Poster  
CSHP-5

## USING THE LENA TO IDENTIFY QUALITY AND QUANTITY OF CHILD LANGUAGE WITHIN SPONTANEOUS AND GUIDED PLAY

Shannon Purcell, Kayla Hilla, Ashley Harris

*Speech, Language and Hearing*

Project Advisor(s): Jane Puhlman

Play is a natural means for children to explore their environment, use their creativity and build linguistic, motoric and dexterity skills (Ginsburg, 2007). It is a way for children to practice new skills, imitate and make sense of adult-like behaviors and strengthen the neural connections in the child's brain, leading to long lasting benefits (Tsao, 2017). Children learn language through watching adult models and imitating those models in play. When considering the Vygotskian philosophy, adults can scaffold learning through the child's play. Examples seen in guided play is when adults provide materials for more complex play (e.g. set up store) or encouraging literacy through play (Tsao, 2008). In comparison, spontaneous play is when the child receives little guidance from an adult, and their play is child-guided and intrinsically motivated (Dweisburg, Kittredge, Hirsh-Pasek, Golinkoff & Klhar, 2015). The purpose of this study is to investigate how the quality and quantity of children's language may differ between spontaneous and guided play. The LENA (Language Environmental Analysis) was used to record both spontaneous and guided play in 10, four-year old's while in the home setting. The audio transcripts were then analyzed for quantity of language (e.g. number of different words and mean length of utterance) and a quality (type token ratio) of language within each setting. The differences in quality and quantity within each child and across the group are compared. Clinical implications of findings will be shared and discussed.

Poster  
CSHP-6

## MOCK JURORS' PERCEPTIONS OF BIAS IN FORENSIC TESTING

Ashley Taylor, Kendra Taylor

*Psychology*

Project Advisor(s): Ron Craig

DNA analysis is a pivotal type of forensic evidence; often unchallenged in court, it can sway the outcome of a case. Legal challenges raised to DNA evidence often focus on contamination of the samples. However, another area of concern regarding the reliability of DNA results is that of subjectivity. When there is limited genetic material for testing, or more than one persons' DNA is in the sample, lab technicians must sometimes make judgment calls regarding the inclusion/exclusion of a suspect (Thompson, Mueller, & Krane, 2012). There are no standards for blind testing of DNA; the technician is often aware which sample is the suspect's. Such prior awareness has been shown to result in inaccuracies in other forensic tests and even false convictions. This project examines mock jurors' perceptions of bias when a technician knows which sample was the suspect's and if there is a difference between DNA and other types of forensic evidence. Participants read one of four mock trial scenarios, where the type of forensic evidence (mixed sample DNA vs. partial fingerprint) and the lab technician's foreknowledge are varied. After reading a summary of the case, participants rated the suspect's guilt and certainty of their verdict. Expert testimony about the forensic test was then presented, varying the technician's knowledge of the suspect, and participants rated guilt and certainty of verdict again. Participants provided feedback on the influence of the various pieces of evidence, familiarity with the court system, TV crime drama viewing behavior, and demographics. Ratings of guilt and certainty will be compared to assess mock jurors' perceptions of technician foreknowledge and bias across the two test types. Results will be discussed regarding the potential impact of biased DNA testimony in trials and the possible need for more stringent standards to reduce bias in DNA interpretations.

Poster  
CSHP-7

## SURVEYING THE GUT MICROBIOME OF THE PACIFIC COAST DAMPWOOD TERMITE, *ZOOTERMOPSIS ANGUSTICOLLIS*

Michael Anthony, Tyce Schneider, Matthew Foradori

*Biology*

Project Advisor(s): Matthew Foradori

Microbiome is a term used to describe all of the genes found in the entire collection of microorganisms that live within and on a host organism or other environment. The gut microbiome refers to only the genes of the microorganisms that live within the intestinal tract of a host organism. The gut of *Zootermopsis angusticollis*, the Pacific Coast Dampwood Termite, and other wood-termites contain single-celled protozoans such as *Trichonympha* that aid in the digestion of cellulose found in the wood that termites thrive on. As a result, these protozoans are crucial for the termite's survival. However, protozoans like *Trichonympha* are not the only microorganisms found in the gut, rather the gut is teeming with microbial species all of which are either simply benefiting from a termite's diet or are aiding in the health of the termite in a symbiotic relationship. This project will survey the constituents of this expansive microbial ecosystem using Next Generation Sequencing. We have attempted to extract and sequence DNA from all protozoans and microbes found within the gut utilizing the Ion Torrent PGM. We will survey all of the sequence data collected in order to identify as many members of this termite's gut microbiome as possible.

Poster  
CSHP-8

## PRELIMINARY SEISMIC INVESTIGATION TO DETERMINE DEPTH TO BEDROCK AND SUBSURFACE SUITABILITY FOR A WATER WELL IN MORAINE STATE PARK, PENNSYLVANIA.

Luke Morgan, Tamara Misner, Eric Straffin

Project Advisor(s): Tamara Misner

Course: Geosciences

For decades, seismic refraction methods have proven effective and economical to model subsurface features. In order to determine a suitable location for a new water well in Moraine State Park, Edinboro University of Pennsylvania Geoscience students conducted a seismic refraction survey within the park. The refraction data were used to construct a profile showing the depth of the bedrock and the thickness of materials suitable for an aquifer. The refraction data shows three clear layers; a thin soil layer that extends down approximately 2 meters, sand and gravel type sediment that extends between 3 and 14 meters below the surface, and sandstone and shale bedrock consistent with the Allegheny Formation below the gravel sediment. The area with the thickest sand and gravel deposits are most suitable for drilling a new, high capacity well.

Poster  
CSHP-9

## COMPUTATIONAL STUDY OF THE PHOTOCHEMISTRY OF PYRAZINE

Gerold Hoffman, Zachary Holden, Naod Kebede, Autumn Pahel, James Pavlik

*Chemistry*

Project Advisor(s): Gerald Hoffman

In the past few decades the light induced formation of pyrimidine from pyrazine (and their methylated derivatives) has been a topic of research and discussion. Recently research was conducted under Dr. Gerald Hoffman and Dr. Naod Kebede on the following pyrazines and pyrimidines: 2,3 dimethyl pyrazine, 2,5 dimethyl pyrazine, 2,6 dimethyl pyrazine, 2,4 dimethyl pyrimidine, 2,5 dimethyl pyrimidine, 4,5 dimethyl pyrimidine, and 4,6 dimethyl pyrimidine. Theoretical mechanisms were drawn out using these compounds via bicyclic intermediates of the methylated pyrazines and pyrimidines. The structures were sketched using the Avogadro package. The energy values were then calculated for each compound using the Psi4 program and the MP2 (Møller-Plesset)/6-31+G\*, MP2/aug-cc-pVTZ, CCSD (Couple Clustered Single Double)/6-31+G\* and CCSD/cc-pVDZ basis sets. During this research it was discovered that the bicyclic compounds converged to form tricyclic benzvalene-like systems. As to whether or not the tricyclic compounds were pertinent to this mechanism was unknown. Therefore, the purpose of the research conducted was to determine the precise structures of the tricyclic systems, and their energies. To determine the likelihood that the tricyclic compounds exist, a comparison was completed using the tricyclic systems of the following molecules, pyridine, pyrimidine, pyrazine, pyridazine and benzene. The methods and basis sets described earlier were used in this study. The research is currently on-going, thus meaningful results and a conclusion cannot be drawn at this point.

Poster  
CSHP-10

## CONTRIBUTIONS MADE TO THE FERMILAB TEST BEAM FACILITY

Kevin Shuman

*Physics*

Project Advisor(s): Mandy Rominsky\*

This poster presentation elaborates on three contributions made to the Fermilab Test Beam Facility (FTBF). The first is the integration of Maximum Integrated Data Acquisition System (MIDAS), which is a data acquisition software developed by TRIUMF, to the FTBF DAQ. MIDAS uses modular networking and a central database to analyze and store data, respectively, from the detectors that characterize the test beam. The second contribution is the development of a time of flight system (TOF), which is a detector that identifies particles by determining the mass of a particle from measuring the time difference between a particle with a known momentum interacting with two detectors separated by a known distance. The last contribution was calibrating a lead glass calorimeter, a device used to measure the energy deposited by a charged particle passing through it.

Poster  
CSHP-11

## THE EFFECTS OF HERBICIDES ON ORGANISMS AND THEIR ENVIRONMENT

Kasey Celestin, Emily Porter, Zachary Smego

*Biology*

Project Advisor(s): Nina Thumser

Studies have recently shown that weed control products that are glyphosate based, such as Round-Up®, have shown affects on organisms. The most effected by such products are earthworms. Three fields with different glyphosate treatment histories were tested and compared for species abundance and diversity. In addition, the soil samples from these fields were tested and compared for levels of macronutrients, pH, and texture. The field with the most recent glyphosate treatment had the highest diversity but least abundance, while the field without any recent glyphosate treatment had the lower diversity but the greatest abundance. There was little difference in the macronutrients and pH among the three fields. The amount of clay varied among the three treatments.

Poster  
CSHP-12

## **RADIANT CATALYTIC IONIZATION EFFECTS ON VARIOUS JUICE OR SPICE INFUSED AGARS**

Michael Sweeney, Oladapo Afolabi, Ryan Clark, Brienne Kilbert, Christopher Pasky, Maura Mobilia, William Mackay, David Fulford, Craig Steele

*Biology*

Project Advisor(s): William Mackay, David Fulford

A major concern throughout the world is food-borne illnesses. To combat this problem a new technique created has shown through previous research a 90% killing of pathogens in a twenty-minute period of exposure. Radiant Catalytic Ionization (RCI) is an approach used to reduce microbial production by killing microbes in the air by using oxygen metabolites, such as hydrogen peroxide and ozone. The primary focus of this study is to determine if RCI technology will have an effect on different types of media. To test this hypothesis, we have used *Escherichia coli* on various juices or spices infused in agar to represent common food products. The media chosen for this study include Tryptic Soy Agar (TSA) and TSA infused with juices or spices such as cabbage, carrot, ginger, or garlic. They were chosen to test possible antimicrobial effects between the juices or spices in the presence of RCI. The results of this investigation will help clarify the effectiveness of RCI technology as a method to reduce potential pathogens associated with food.

Poster  
CSHP-13

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## School of Graduate Studies and Research

### ANALYSIS OF PARENT/CHILD INTERACTIONS AND MEDIA UTILIZING THE LENA (LANGUAGE ENVIRONMENTAL ANALYSIS)

Alyssa Rhone

*Speech, Language and Hearing*

Project Advisor(s): Jane Puhlman

In today's society children are exposed to digital media and screen time more than ever before. Television is the most viewed digital medium among children; with one-third of children under the age of seven having televisions in their bedrooms (Radesky & Christakis, 2016). Parental language input during this time is critical for children, who are building foundational language skills. The American Academy of Pediatrics suggests that children ages two to five be limited to less than one hour of digital media content per day (Radesky & Christakis, 2016). It has been found that parent-child interactions decrease while the television is on in the background (Krikorian et al., 2009). Not only is there less play between children and parents, the child is not receiving beneficial language engagement (Krikorian et al., 2009).

To examine the quantity and quality of parent-child interactions during television watching, 27 children, ages 1.5 to 5 years, were recorded for over 16 hours of a day using a Language ENvironmental Analysis (LENA) device. The audio files were reviewed and screen time was spliced from the larger language sample. The screen viewing times were then transcribed and coded using the Dyadic Parent-Children Interaction Coding System (Eyeberg & Robinson, 2000). Information gleaned from the LENA recordings included: the total number of minutes television was on throughout the day, number of minutes it was watched by child, types of media viewed, the time of day television was being watched, the number of parent-child interactions during tv viewing and quality of interactions.

The aims of this study included: 1) What are the type (quality) and quantity of television viewing and 2) What is the quality and quantity of language input children are receiving from parents during screen time.

Poster  
SGSR-1

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## Student Authors

Afolabi, O., 8  
Anthony, M., 5

Celestin, K., 7  
Choby, J., 2  
Clark, R., 8

Gosser, M., 2  
Greene, K., 2

Haines, W., 4  
Harris, A., 4  
Hasenflu, S., 3  
Higgins, E., 2  
Hilla, K., 4  
Holden, Z., 6  
Huffman, J., 1

Johnson, D., 3

Kilbert, B., 8

Mobilia, M, 8  
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Pahel, A., 6  
Pasky, C., 8  
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Ransel, J., 1  
Ray, J., 3  
Rhone, A., 9

Schneider, T, 5  
Shuman, K., 7  
Skinner, P., 3  
Smego, Z., 7  
Sweeney, M., 8

Taylor, A., 5  
Taylor, K., 5



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## Faculty Advisors

Claster, P., 1  
Craig, R., 3, 5

Foradori, M., 5  
Fulford, D., 8

Gu, Q., 2

Hoffman, G., 6

Kebede, N., 3

Mackay, W., 8  
Misner, T., 4, 6  
Morrow, G., 3

Puhlman, J., 2, 4, 9

Rominsky, M.\* , 7

Thumser, N., 7

Vegh, D., 1