



# JEWELL RESEARCH LAB

FISCHELL DEPARTMENT OF BIOENGINEERING  
UNIVERSITY OF MARYLAND - COLLEGE PARK

## 2018 Lab Olympics: Event Descriptions

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### **Event 1: Target Practice**

Each lab member gets 10 pipette tips to shoot with the single channel micropipette of their choice. The object is to shoot the most tips in to the greatest value target contains. Tips will be shot from a fixed distance into one of three stationary targets. The closest target is worth one point per tip, the next is worth two points, and the furthest is worth three points. Medals will be decided by calculating the total score for each person. To avoid disqualification, all 10 pipette tips must be located and discarded prior to receiving a point total.

### **Event 2: Steady hand**

Sequentially, each lab member will free pour with a single hand a specified volume of PBS into an unmarked 20mL vial. The object is to pour as close to the specified volume as possible using a single pour motion without going over the specified value. After all pours are complete, the actual volume will be measured by serological pipette and the smallest difference between the target and actual pour will win Gold (along with the next two closest points winning silver and bronze). Competitors will be **disqualified** for any of the following: i) a pour not conducted in a single motion, ii) any liquid reaching any surface other than the inside of the vial or the starting vial (including drops), iii) pouring any amount more than the target volume. Competitors may practice before the target volume is announced.

### **Event 3: Tip-fill (team)**

This is the tip-fill relay!!! The objective for each team is to fill six pipette tip boxes in relay fashion. All team members will glove up, place boxes and tips in a central station, and agree on a filling order. At the signal, the first team member will fill the first box. Once the lid to the box is closed, the next team member may begin filling, and this sequence will be repeated until the lid to the sixth box is closed. To win the relay, all team members must **legibly** write their first and last names on the interior glass wall of the lab using a compatible marker. Team members may not leave the relay area or start writing until the last box has been filled and closed. Any running will result in the immediate **disqualification** of the entire team. Closing the lid to a box without filling all 96 holes or two team members filling simultaneously at any time will also result in immediately **disqualification** from tip-fill.

### **Event 4: Worth your salt**

The objective is to add an amount of NaCl to a vial to match a target mass provided by a competitor. Each competitor will draw the name of another lab member then choose a target NaCl mass for that competitor that is **between 2.000 and 5.000 grams**. The person whose name was drawn will likewise select a target mass value for the competitor who drew their name (also in the same range). Each competitor will also press tare on the microgram-scale balance and record the mass of a 20 mL scintillation vial (with lid) that they chose. The event will then commence, with each competitor adding a mass to their vial to match as closely as possible the target mass. After all vials are prepared and capped, they will once again be weighed on the microgram balance. Winners will be determined based on the smallest difference between the target and estimated NaCl mass. In this event, masses over the target actual mass **will not** result in disqualification.

### **Event 5: Drop of fun**

In this event competitors will attempt to estimate the volume of PBS dispensed onto a cover slide by a competitor. Each competitor will draw the name of another lab member who will in secret (accurately) set a volume on a P200 micropipette. This value must be between 20 and 180  $\mu$ L and will be verified and recorded by the referee. Then the setup and volume selection process will be repeated by the competitor whose name was drawn. The event will then commence in a central competition area in which the dispensing competitor elutes the PBS onto the cover slip while the guessing competitor is not looking. After observing the droplet, the guessing competitor will provide a final guess to the referee. Winners will be determined based on the smallest difference between the actual and estimated PBS volume mass. The value set on the pipette just before each competitor dispenses the PBS will be taken as the exact dispensed volume. In this event, guesses over the actual mass **will not** result in disqualification, however, dispensing the droplet without proper technique **will result in disqualification**.

### Event 6: Budget baller (team)

This team event has two phases centered around creating a budget of a 5 year NIH R01 grant. The goal is to design a budget that matches the total closest dollar amount of the actual budget, as designed by the referee. Each team will be given the budget justification and specific aims page. The team will then have 7 minutes to discuss amongst themselves the best way to allocate funds to the budget. Teams must also select a data miner to represent the team in phase two. Immediately after the 5 minute discussion period, there will be a 30 second transition period in which the selected members from each team will go to the lab workstations. Immediately after the 30 second transition period, the data miners will begin completing the budget worksheet. During this time, the data miner can use a single "Ask-a-team-member" option to get assistance for a 30 second period. No other team member may touch the computer. No other assistance (verbal, action, words, etc.) may be given. However, cheering, encouragement, and good-natured mocking is encouraged. After both team budgets are complete, the total budget will be compared against the actual total. Additionally, the first team that completes the budget will have the difference between their budget and the actual budget reduced by \$35,000. After this adjustment, the team with the budget closest to the actual budget wins Budget Baller!

### Event 7: Communication cluster (team)

In this event, the ability to transfer complex information between team members will be put to the test. In each round, team members will stand in line. In private, the referee will present the first members of each team with a scientific statement, which the referee will read one time. The first team members will then return to the line and whisper the statement to the second team member a single time. The second team member will whisper the statement to the third team member a single time, and so on until the last team member is reached. The last team member will then write the statement on the interior glass wall of the lab using a compatible marker. Each error will be counted, and the team with the fewest mistakes/closest replication of the original statement will win the round. There will be a total of up to three rounds, with 1 point awarded per round. The team that reaches 2 points first wins the event. Between rounds, all team members will change their positions in the lines. If a team has an odd number of members, a different team member will sit out of each round. Repeating the statement more than once, or speaking the statement loud enough that others can hear will result in the team's disqualification.

### Event 8: Bonus round

Lab members will answer a series of questions and will be awarded one point per correct answer. Medals will not be awarded for this event, but the points will be added to the competitor's overall Olympic point total.

### Tie breaker protocol

The tied competitors will each aliquot 1 mL of milliQ water onto the microgram-scale balance using a P200. All fluid that is aspirated must be expelled onto the balance. The competitor adding a volume with a mass closest to 998 µg wins the tie.

### Notes:

- The correct answers are those issued by the referee.
- Use of the internet/phones/computers for researching answers to questions or other online assistance will result in immediate disqualification from the lab Olympics.
- For sequential events, the first competitor will be selected by random number.
- Scoring for each event:
  - Individual events: Gold = 3 points, Silver = 2 points, Bronze = 1 point
  - Team events: 2 points to each member of the winning team
  - Bonus round: 1 point for each correct answer
- Points within an event (e.g., earned during Target Practice) are only to determine the medal placements in that event and are not added to the overall Olympic point values for a competitor.
- For events with head-to-head competition, the referee may provide target volumes or masses when an odd number of competitors compete.