

# **PSY100 Pool**

## **Summer 2021**

# **Principles and Procedures For Using the PSY100 Participant Pool**

### **Table of Contents**

	<b>Page</b>
Penalties Imposed for Failing to Meet One's Obligations to Participants	3
The PSY100 Participant Pool: Rationale and Conditions	4
Gaining Access to the PSY100 Participant Pool	5
Using the PSY100 Participant Pool	6
Appendix A: Selected Portions of PSY100 Student Handbook	8
Appendix B: Preparing the Debriefing Package	14

## **PENALTIES IMPOSED FOR FAILING TO MEET ONE'S OBLIGATIONS TO PARTICIPANTS**

### **Appointments with Students:**

If you post a timeslot on SONA, it is your responsibility as the experimenter to be there for the session. Please take care not to post timeslots if you are not sure you can attend, and do your utmost to avoid cancelling appointments. In the rare case where you have to cancel an appointment with a student, you must email them at least 24 hours prior to the experiment to notify them and offer to reschedule. You cannot unbook students without notice. If you must unbook them, please send an email to the student at least 24 hours prior to the experiment explaining the reason and offering to reschedule, if possible.

Due to an alarming increase in the number of researchers who have been missing appointments with their participants, the PSY100 participant pool committee is imposing the following sanctions on those researchers who fail to meet their obligations to their participants:

**First missed appointment with a participant:** researcher will be contacted by a member of the participant pool committee.

**Second missed appointment with a participant:** researcher and researcher's supervisor will be contacted by a member of the participant pool committee.

**Third missed appointment with a participant:** researcher will be denied access to the participant pool for the remainder of that semester and for the following semester (e.g., infraction occurs during the first summer term, researcher will be banned for both summer terms).

Please note that researchers who miss group sessions will be denied access to the participant pool after the second missed session.

If an experimenter misses an experiment and the student participant shows up and has to wait, the student will **not** be available to participate in this particular experiment in the future.

### **Reporting Participant Credits:**

Participant credits are awarded by the researcher through the SONA system. Participant appointments are "resolved" by either giving credit or indicating that the participant failed to keep the appointment (a "no-show"). Appointments must be resolved as soon as possible after they end because students expect and deserve to receive their credit promptly. Given the importance and simplicity of assigning credits, we require that appointments be resolved within 48 hours. If you have unresolved appointments, SONA will give you a warning and then your account will be automatically suspended after 48 hours. If your account is suspended you must contact the PSY100 Pool Coordinator ([psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca)) to have it reactivated. While your account is suspended you will not be able to post new appointments or change existing ones.

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**Use of the PSY100 participant pool may not be appropriate for all studies.  
The participant pool committee therefore reserves the right, in some  
cases, to restrict the use of the participant pool.**

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## THE PSY100 PARTICIPANT POOL: RATIONALE AND CONDITIONS

The rules concerning the PSY100 Participant Pool are designed to (a) facilitate approved research in the Department that has received prior ethics clearance, (b) provide a valuable educational experience for PSY100 students reinforced by earning academic credit for participation, and (c) minimize complaints from students.

The guidelines below were developed in order to clearly establish who is permitted access to the PSY100 pool given that the pool is a limited resource. These guidelines will be reviewed periodically. The following people are eligible to use the PSY100 participant pool:

1. Full-time primary appointees on the St. George campus Psychology Department.
2. Psychology graduate students at St. George, whose supervisor is on the St. George campus.
3. PSY400 students at St. George, in connection with their thesis work.
4. Third and fourth year Psychology students at St. George, who are doing an independent studies project for academic credit.
5. Cross-appointees may have access in accordance with criteria 3 and 4 above pertaining to undergraduates from St. George campus. **Note that testing must be done on the St. George campus.**
6. Graduate students whose primary supervisor is a cross-appointee may submit a formal, written request to use the pool during each semester. **Any proposed project must be cosupervised by a Psychology St. George faculty member, must have ethics approval from the UT Office of Research Services, and testing must be done on the St. George campus.** All applications will be reviewed by the participant pool committee, and access will be granted on a case-by-case basis. Note that limitations on the number of participants might be made depending on the size of the participant pool that semester.
7. Cross-appointees, cross-appointees' post-docs, and faculty at Scarborough and Mississauga campuses may submit a formal, written request to use the participant pool, **four (4) weeks before the end of classes each term. All proposed projects must be conducted on the St. George campus and must have ethics approval from the UT Office of Research Services.** All applications will be reviewed by the participant pool committee, and access will be granted on a case-by-case basis. Note that limitations on the number of participants might be made depending on the size of the participant pool that semester.
8. Please note that there may be exceptions to the above guidelines when special circumstances arise. The PSY100 Participant Pool Committee reserves the right to render decisions on a case-by-case basis in the event of exceptional situations.

All experimenters must have access to appropriate lab space and a local office and phone where participants can reach them, or at least get a message to them.

An experimental session must last no longer than two hours. Experimenters requiring more than one hour will need prior approval from the PSY100 Pool Coordinator ([psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca)). Since credits are awarded on a per hour basis and we can't award partial credit, all experiments must be posted as lasting one or two hours.

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All studies in the SONA system must be awarded with SONA credit, not other forms of payment. Recruitment for paid studies must occur outside the SONA pool.

All experimental sessions must include a debriefing procedure that, in addition to the usual protocols, fulfills the educational role of experimental participation in PSY100. For this reason, we cannot offer online studies, since the debriefing procedure must be conducted in person. If your study has an online component but an in-person debriefing session, please alert the PSY100 Pool Coordinator of this when applying to the pool.

The debriefing should emphasize the relevance of the research for introductory psychology. The questions given to the student (see item 4 below) should represent a reasonable test of the student's understanding of the purpose and design of the experiment, and should allow those students who opt to participate merely as observers to still gain educational benefit and academic credit from the experiment.

All experiments using the PSY100 Participant Pool must be scheduled on or before the last day of classes each term, as the last day of class is the final date by which PSY100 students must complete their research participation requirement.

### **GAINING ACCESS TO THE PSY100 PARTICIPANT POOL**

The first step is to create an account on the SONA web system. Multiple experiments can be linked to a single SONA account, therefore even if you will be running several experiments you only need one SONA account. We expect that, typically, each lab will have one SONA account, which they use to manage all experiments within the lab. However, if you are an independent study student or wish to have a separate account for some reason, please feel free to create one.

To setup an account:

1. Go to <https://utsgpsych.sona-systems.com/>
2. Enter your UTORID
3. Submit a contract signed by the faculty supervisor and all personnel who will interact with PSY100 participants, affirming they have read all the relevant material and have agreed to comply with the PSY100 Participant Pool Procedures as outlined in this document. The contract is available at <http://home.psych.utoronto.ca/resources/researchers/psy100pool.htm>

Once your SONA account is setup the following steps are required to gain access to students in PSY100 as participants. **Important note: the application process is paperless. That is, all materials are submitted electronically either over the SONA system or via email to [psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca). No hard copies will be accepted. Submitting hard copies may result in considerable delays, as we will not be checking the physical mailbox with any regularity.**

1. Obtain written approval of your study and of your *Participant Consent Form* from the Human Ethics Committee. (We will need this information to deal with questions students might raise concerning the ethics of your study.)

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2. Read Appendix A, which excerpts the section from the *PSY100 Student Handbook* relevant to research participation. This is the material that informs PSY100 students about the PSY100 Participant Pool and research participation. You will then know what students will expect.
  3. Refer to Appendix B, which provides instructions for preparing the *Debriefing Package* for the PSY100 students who will be participants in your experiment. The *Debriefing Package* content should be clear, readable and at a level suitable to enhance the educational benefits for the students of their participation as participants. Allow for feedback and modification from the PSY100 Pool Coordinator of a draft of your *Debriefing Package*. (Once submitted and approved, the *Debriefing Package* cannot be altered in any way without being cleared in writing with the PSY100 Pool Coordinator.)
  4. Prepare a set of six simple straight-forward test questions about the research design and method of your experiment, one of which you will select randomly to ask the student as part of the debriefing procedures. The function of asking the question is not so much to "test" the students as it is to encourage and reinforce the educational aspect of their experience as the basis for giving them the academic credit.
  5. Login to the SONA system and add a new study, and fill in its details.
    - To do so, log in to your account and then "Add a New Study"
    - You will be required to fill out a brief description of your experiment. There is also space to place restrictions such as previous experiments or specific demographic characteristics. It **is** appropriate to indicate restrictions such as male or female, or right- or left-handed persons. It is **not** appropriate, however, to post "special" messages or inducements, such as "Only 20 minutes!"
  6. Email the following material to the psy100 pool coordinator at psy100.experiments@utoronto.ca:
    - a. a copy of the approval form for your study from the Human Ethics Committee.
    - b. a copy of the *Participant Consent Form* approved by the Human Ethics Committee.
    - c. if recruiting participants by phone or email, a copy of your phone/email script approved by the Human Ethics Committee.
    - d. a copy of your Ethics approved *Debriefing Letter*.
    - e. a copy of the six questions and answers
    - f. the *Checklist*, with Part I and Part IV filled-in. The checklist is available at <https://www.psych.utoronto.ca/resources/departement-resources>

Upon submission of this material, the coordinator will review your application. Once the application is approved you will be able to begin recruiting through SONA.

If you will be recruiting participants by phone/email you will be sent a calling list of students who agreed to be contacted by phone/email.

### **Once your package is approved: USING THE PSY100 PARTICIPANT POOL**

All experimental sign-up is through the SONA system. The system is user friendly and has a built in help function. But first time users may find the following mini-guide helpful.

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*On the site you will see a calendar view. If you click on a date, a menu will appear above the calendar. To add a timeslot, pick a study from the drop-down list and then choose the start time and duration of your study. You can choose to post more than one identical timeslot, or a number of identical timeslots in a row (i.e. with each beginning when the previous timeslot ends). Please enter your initials if multiple people use your account, so you will know who posted the timeslot and is therefore responsible for it. The calendar view will also show you any currently booked appointments.*

*Some experimenters prefer to recruit participants over the phone or email using the PSY100 mass testing data (available pending application to use the mass testing questionnaire). All phone/email recruitment sessions must be entered into the SONA system by accessing the 'Manual Recruitment' tab and filling in the required information. Whenever you complete the form a timeslot will be added in the calendar. All appointments must be entered into the SONA system, your access to the Pool may be revoked if you fail to enter an appointment. If you have a multi-session study, you can also use this tab to manually sign up students for subsequent appointments.*

*If you click on a posted timeslot, the details of that timeslot will appear above the calendar. When someone signs up, the timeslot will change colours and the name and contact information for the student will be displayed.*

*After each scheduled appointment you must "resolve" the appointment by either assigning credit or indicating that the student did not keep the appointment (a "no-show"). This is a simple procedure that involves a few mouse clicks. Once a student has completed the experiment, you must credit them by clicking on their time slot, clicking on "resolve event" and then choosing 1 or 2 credits (if your study is one or two hours long), "no-show" or "resolve without awarding credit/no-show".*

*Sometimes students will not keep their appointments; in these cases you should follow the same procedure but click "indicate no-show" instead of "give credit". In very rare circumstances you will have to resolve an appointment without giving credit but also without penalizing the student as a no-show. In these cases you should click "resolve without giving credit" but please check with the Pool Coordinator before using this option, or provide detailed notes in the designated section.*

## **Debriefing and Crediting Procedure**

Upon completion of the experimental session, give all students a copy of the Debriefing Package, allowing them time to read it and to ask relevant questions. Debrief students to ensure their understanding of the purpose and design of the experiment with a view to illustrating ideas from PSY100.

Ask students one of the six previously prepared test questions, either immediately after debriefing or at a later date, given the student's wish or the demands of the situation. If the student answers correctly, write "Pass" on the student's Receipt of Participation, dated and signed by you, with the student's name filled in. The Receipt of Participation serves as an independent confirmation that the student participated in the event of a problem with the online credit reporting system. The Receipt form is available at <http://home.psych.utoronto.ca/resources/researchers/psy100pool.htm>. If the student fails to answer the question correctly, explain the correct answer and ask the student to review the Debriefing Package again. Following this opportunity for additional study, ask the student another one of the questions until the student gives a satisfactory answer, at which point proceed as described above.

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Participant credits are reported through the SONA system. After each scheduled appointment you must "resolve" the appointment by either assigning credit or indicating that the student did not keep the appointment (a "no-show"). This is a simple procedure that involves a few mouse clicks. Instructions are above, or available online in the SONA system help.

**If your experiment spans multiple sessions,** you can either allow the student to select the date and time of the second session themselves using their own SONA account, or you can add the second session to SONA yourself by entering the information for the session under the "Manual Recruitment" tab.

**If you run a student in a study that they have not signed up for in advance,** you can register a student manually for a specified timeslot using the "Manual Recruitment" tab without opening up that timeslot to all student users.

**If you cannot find a student's timeslot in the system,** please ensure they haven't attended the wrong study by mistake. This is especially relevant for labs that share user accounts and have multiple studies under one account. If this occurs, you can register them for the correct study using the "Manual Recruitment" tab, and resolve the unattended timeslot with no credit/no penalty.

Please be sure that all study participation is entered in the SONA system so students receive the appropriate credits AND **give participants the correct 'proof of participation' form after debriefing.**

Appointments must be resolved as soon as possible after the appointment because students expect and deserve to receive their credit promptly. Given the importance and simplicity of assigning credits, we require that appointments be resolved within 48 hours. If you have unresolved appointments, SONA will give you a warning and then your account will be automatically suspended after 48 hours. If your account is suspended you must contact the PSY100 Pool Coordinator to have it reactivated. While your account is suspended you will not be able to post new appointments or change existing ones.

For those few students who opt out as participants, you should "walk them through" as observers and still award them credit. Such students are entitled to the educational benefits of participation, including academic credit.

**Penalties will be imposed for failing to follow this reporting procedure!**

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## **APPENDIX A – PORTIONS OF THE PSY100 STUDENT HANDBOOK RE: PSY100 POOL**

### **Rationale for Participation in Experiments**

Much of the data comprising psychological knowledge comes from experiments that employ human participants. The nature of such data and the experimental situations in which such data are obtained are not always what they appear to be from the outside looking in, that is, from reading chapters in Psychology textbooks. Serving as a participant in such experiments can enhance your understanding of the process of psychological experimentation.

For this reason, we provide students with opportunities to earn course credit for participating in up to three different experiments chosen from among a specific group of experiments offered throughout the term. Each such experiment takes usually no more than one hour in total length, though a few might take longer or be divided into two briefer sessions. The Department has selected these particular experiments to maximize potential educational value to the participant.

All the experiments must undergo a rigorous ethics approval process prior to approval. The Ethics Review Board ensures the physical and psychological welfare of the participants (in this case, PSY100 students). As such, one of the Ethics Review Board's primary concerns is participant privacy, anonymity, and confidentiality. No study is ever approved unless the researchers have taken great efforts to protect privacy. For more information about each study, be sure to read the consent and debriefing forms in detail. For more information about the Ethics Review Board consult: <http://www.research.utoronto.ca/faculty-and-staff/research-ethics-and-protections/humans-in-research/>. If you ever have any concerns about the ethics of an experiment in the SONA pool, please contact the investigators associated with that study, the coordinator at [psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca) or the Ethics Review Board.

There are several concepts relating to research and experimental design that are important for you to understand before you participate in any experiment. These concepts are outlined in the Glossary of Experimental Design Terms, which are located near the end of this handbook. We urge you to review this glossary before you sign up for your first experiment. Note that these concepts will be discussed more fully in class when we cover research methodology.

### **Procedures for Participation in Experiments**

Beginning in mid-September for PSY100F, in mid-January for PSY100W and mid-May for PSY100 S available experiments will be posted on a secure system called SONA, which can be accessed from the PSY100 web site. Signing up for experiment participation can be done only through this site. Once you have registered, you will be able to obtain access to the experiment sign-up page at any time (instructions for registering can be found on page 2 of this document). When you are actually ready to sign up, follow the instructions below.

Be sure to make a careful note of both the time and place of your appointment. If you do forget the time or place, simply log on to SONA from any computer for this information.

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Once you have signed up for an appointment time, you must keep it unless you arrange a change in time with the experimenter—in advance. You can cancel your appointment; however, cancellation is only possible up to 12 hours before your appointment. To cancel your appointment, you must email (or telephone) the experimenter at least 12 hours in advance. In your message you should include your name, student number, and the date and time of the appointment you wish to cancel, as well as the experiment number. We keep a record of those students who fail to show up and did not cancel their appointment in advance. Students whose names appear on this record are penalized according to the procedures described on the following pages.

### **How to Register on the SONA System to Sign Up for Experiments**

To sign up for experiment participation you will have to follow the instructions:

1. Go to <https://utsgpsych.sona-systems.com>. There will also be a link posted on Quercus.
2. Login with your UTORID and Password.
3. Click on all available studies to register.

### **Experiment Participation and the PSY100 Student Questionnaire**

At the beginning of the term, the PSY100 Student Questionnaire will be available on SONA for a limited amount of time. Participation in this questionnaire is voluntary. Your results will be stored anonymously and can only be accessed by researchers who are qualified to conduct these surveys. Completing this questionnaire will make you eligible for additional experiments and can provide additional learning experience in psychological experimentation. We ask that you please minimize any environmental distractions when completing the questionnaire.

On your SONA homepage you will see a calendar view. The calendar shows experiments that are available for you to participate in. Note that you can use the arrows next to the month name to navigate to other months. If you click on an available experiment, a box will appear above the calendar displaying details on the study and a “signup” button. Pay special attention to the exclusions in the experiment details. These are things that exclude you from participating in a particular experiment and may be things like participation in another experiment (e.g., some experiments are very similar and so it is not helpful to either you or the researcher to participate in both), or demographic characteristic (e.g., some researchers may need participants who are left handed, or who speak a particular language). Be sure to **ONLY** sign up for experiments that you are eligible to participate in.

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You can sign up for any experiment you see in the calendar view, as long as you meet the criteria. When you pick an experiment be sure to record the location and time of your appointment. A box at the top of the page will show you any appointments you have already made. SONA will permit you to sign up for a maximum number of **three** experiments at a time. If you cancel an experiment, you will be able to replace this cancelled experiment with a newly scheduled experiment timeslot. To cancel your appointment you must email (or telephone) the experimenter at least 12 hours in advance, or unbook on SONA within the 15-minute cancellation window provided. To unbook an appointment within this window, click on the timeslot you wish to cancel and click the "unbook" button that appears. This button will disappear after 15 minutes.

In addition to the regular sign-up method through SONA, some experimenters may decide to contact you. Students who completed the optional online PSY100 Student Questionnaire at the beginning of the term and who indicated their willingness to be invited to participate voluntarily in certain studies conducted by the department might be contacted by phone or email (rather than through the sign-up procedure described above). Being contacted in no way requires you to accept the invitation. If you are contacted and do choose to participate in the experiment, please check the list of approved experiments listed on SONA (under the 'Email Studies' tab) to ensure it is a legitimate PSY100 experiment. If you agree to participate in a recruited experiment, the experimenter will enter this information on SONA. If you do not see the experiment listed on your SONA account within 3 days, please email the PSY100 Pool Coordinator at [psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca).

If you are contacted to participate in an experiment not listed on SONA, do not take part in it and report this immediately to the PSY100 Pool Coordinator ([psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca)). Do note that you should not wait until the last date possible to participate in your experiments in the hope that you might be invited to participate in one.

**IMPORTANT:** Experiments are posted throughout the term. Keep checking for new postings if you are unable to sign up right away.

### **Debriefing, Testing, and Receiving Credit for Participation**

Marks for experimental participation are structured in the following way. You will receive one mark for each of the experimental credits that you receive, for a possible total of three full marks, the maximum amount possible. When you successfully participate in an experiment, you will receive an experimental credit. Most experiments are worth one credit each however there are a few that are worth two credits.

You earn the credits as follows: At the conclusion of the experiment in which you have just participated, the experimenter will explain the purpose of the experiment and the rationale behind its particular design. You will also receive a "debriefing sheet" that explains the experiment in detail. When you judge that you understand the experiment and feel ready to answer a brief test question about it, the experimenter will then ask you a test question about the experiment. If you answer the test question correctly, your participation is complete and the experimenter will issue you a signed 'proof of participation' sheet to indicate that you have satisfied this requirement. If you do not answer the test question correctly, you will have the opportunity to study the debriefing sheet further and can arrange to

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receive another test question. You may repeat this process—not too many times, we hope—until you answer the test question correctly.

Once you have correctly answered the test question at the conclusion of each experiment, and have received three credits, you have maximized your experiment participation opportunity. Please retain your signed ‘proof of participation’ sheets and your email confirmation of credit. Should an administrative error occur, these are your proof that you have indeed earned the experiment participation credits. Once you have completed the experiment the researcher will submit your credit to the SONA system and it should appear in your SONA account – it may take the researchers up to two days to register your credit so do not be alarmed if it does not appear immediately. If after two days your credit has not appeared, please send an email with the experiment number, date, and time of your participation to [psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca)

You can earn **no more than** a total of three credits for experiment participation. You also cannot use the SONA system to sign up for paid studies. However, if you would like further research experience as a participant, we encourage you to sign up for experiments advertised on other bulletin boards in Sidney Smith, on the fourth floor and on the ground floor opposite the elevators. SONA should not be used for the purpose of participating in studies for pay.

### **Option to Participate as an Observer Rather Than as a Participant**

Although we encourage you to participate as a subject, you may, if you wish, avoid actual participation as a subject while still earning experiment participation credits. To do this, sign up for each selected experiment exactly as outlined above and, upon arriving at the experiment, immediately inform the experimenter that you intend to participate "only as an observer." Should you choose to participate only as an observer you must inform the experimenter at the beginning of the experiment. As an observer, you will not produce any experimental data. Instead, you will be "walked through" the experiment as though you were a participant, but no data will be collected. You are under no pressure to do anything more than learn what it is that participants in this experiment do and why they are asked to do it. Please note, however, that you are still required to answer the test question at the conclusion of the experiment to receive credit.

Please be aware that, at any time during any experiment, it is your right to stop participating altogether, or to change from participant to observer.

### **Penalty for Missing an Experiment**

We consider it a grievous discourtesy to fail to keep an appointment. Students who fail to keep an appointment and have not cancelled their booking in advance (by at least 12 hours prior to the appointment) will be penalized as follows. (We hope this never applies to you!)

Failing to show up for an experiment results in the subtraction of one mark from your maximum total of three experiment participation marks, for each experiment that you miss. If this does happen to you, you will need to complete one additional experiment for each no-show. For example, if you receive three credits and miss one experiment, your final grade would be two. To attain a grade of three (the maximum grade possible) you must then complete one additional experiment.

Please note that if you do not complete the experiment participation opportunities by the deadline stated below and your credit for participation is a negative value, then the experiment participation component of your grade will be zero out of the maximum total of three; that is, we will not assign a negative value for this portion of your course grade.

If you ever show up for an experiment that you have signed up for and the experimenter is not present, please report this to [psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca)

### **Questions or Problems Concerning Participation**

If you have any questions about an experiment, address them directly to the experimenter or to the experimenter's faculty supervisor. Further questions or problems should be directed to the PSY100 Participant Pool Coordinator ([psy100.experiments@utoronto.ca](mailto:psy100.experiments@utoronto.ca)), particularly if something occurs that does not seem fair or proper.

### **Participation Deadlines**

You must complete the experiment participation opportunities (participating in an experiment and passing the test, for up to three experiments) no later than the last day of classes. We recommend that you plan to participate in experiments throughout the semester as we simply cannot guarantee opportunities for those who delay participation until the last few days of the term.

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## A Glossary of Experimental Design Terms

The purpose of this glossary is to define some of the fundamental concepts of research design with which you should be familiar before you sign up for your first experiment.

### *Hypothesis:*

...a proposition or an assumption that one attempts to verify (or refute) through experimentation or observation. An example of an hypothesis might be: "Students study more effectively in quiet than in noisy environments."

### *Experiment:*

In an experiment, the experimenter deliberately manipulates one or more variables (factors) in order to determine the effect of this manipulation on another variable (or variables). An example might be measuring the effect of noise level on participants' memorization performance of a list of standard nonsense syllables (such as ZUP, PID, WUX, etc.).

### *Independent Variable:*

...the "treatment" variable that the experimenter hypothesizes "has an effect" on some other variable. (See Dependent Variable, below). In the example above, the independent variable would be the level of noise (in this case with three levels: low, medium, high). In an experiment, the independent variable is directly manipulated by the experimenter. But in an observational study, or when naturalistic observations are used, the independent variable is not directly manipulated by the experimenter, and the levels of the independent variable occur naturally and are already given when the study begins.

### *Dependent Variable:*

...the variable that the experimenter hypothesizes is "affected by," or "related to," the independent variable. It is the "outcome" or "effect" variable. Examples would be a measure of the participants' performance, their change in attitude, or change in activation of a particular brain region resulting from changes in the independent variable. In the example described earlier, the dependent variable might be the number of nonsense syllables recalled correctly.

### *Experimental Group and Control Group:*

In some experiments, the levels of the independent variable consist of only two: a treatment-present condition and, for comparison purposes, a treatment-absent, or no-treatment, condition. The group receiving the treatment-present condition (one of the two levels of the independent variable) is called the experimental group, and the group receiving the treatment-absent, or no-treatment, condition (the other level of the independent variable) is called the control group.

### *Confounding Variable (or Confound):*

A confound is any factor that may affect the dependent variable, and which varies between experimental conditions. The presence of a confound means that one cannot conclude that it was the independent variable which affected the dependent variable, because it may well have been the differences in the confounding variable between conditions. For example, imagine you are testing whether alcohol affects how much people are attracted to others. However, the experimental condition involving alcohol takes place in a bar, whereas the control condition not involving alcohol takes place in a bowling alley. If the

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people in the bar are more attracted to those around them than the people in the bowling alley, you cannot conclude that it was because of the alcohol consumption in the bar. There are many other differences between bars and bowling alleys that could have an effect on how attracted people are to others. Confounds must be controlled for, for example, through randomization or by holding them constant.

*Control Variable:*

One can prevent the effects of a specific, identifiable error variable from clouding the results of an experiment by holding this error variable constant. For example, if all participants are the same age, then variations in age cannot act as an error variable. A variable that is thus held constant is called a control variable. (Of course one can then no longer generalize the results to those of ages other than the age selected for the experiment.)

*Null Hypothesis and Alternative Hypothesis:*

The null hypothesis refers to the statement that changes in the independent variable have no effect on the dependent variable and that therefore whatever difference was found between the experimental and control groups simply occurred by chance through the influence of random error variables. The alternative hypothesis refers to the statement that changes in the independent variable really have an effect on the dependent variable and that the difference in performance between the experimental and control groups was greater than what would be expected by chance through only the influence of random error variables. (In the example, above, the null hypothesis is that changes in noise level have no effect on participants' recall scores. The alternative hypothesis is that changes in noise levels have an effect on participants' recall scores.)

*Debriefing:*

In some experiments, it is not desirable that participants know the exact nature of the hypothesis being tested. (There is evidence in certain kinds of experiments that if participants know what the hypothesis is, they might, either consciously or unconsciously, respond in order to try to prove the hypothesis correct -or perhaps false! (rather than respond "naturally" and "honestly.") In such experiments the experimenter arranges to keep participants temporarily "in the dark" about the hypothesis until after the necessary data have been collected. Immediately thereafter, however, the experimenter is obligated to inform participants about the true nature of the hypothesis, why the experiment was designed as it was, and what previous investigators in the relevant areas had found. The experimenter might also ask participants to report to what extent they "saw through" the experiment and what they thought the experimenter was trying to find out. (If an experimenter has other participants yet to test in such an experiment, you may be asked to keep the information revealed in the debriefing session confidential until the conclusion of the whole experiment. Please cooperate with experimenters in this regard.)

## **APPENDIX B: PREPARING THE *DEBRIEFING PACKAGE***

Each student receives your *Debriefing Package* upon serving as a participant, or as an observer, in your experiment. It consists of two parts.

Part I is your debriefing letter. The letter must explain your study in language appropriate for psy100 students (e.g., avoid jargon that wouldn't be covered in psy100). Specifically, the letter must include:

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1. The general area of psychology in which the experiment belongs
  2. Brief summary of background or problem
  3. General description of the experiment
  4. Specific hypotheses tested, if any
  5. Independent variable(s)
  6. Dependent variable(s)
  7. Control procedures (indicate if none used)
  8. Implications for theory or for practice
  9. A reference to the current literature (without abbreviations)
  10. A reference to relevant pages in the PSY100 text

The independent and dependent variables and the control procedures must be EXPLICITLY mentioned (e.g., "the independent variable was X" rather than "we manipulated X" or "the dependent variable was Y" rather than "we measured Y") – remember psy100 students are just learning these concepts so be as clear and explicit as possible. Often there is no simple control condition. In these cases it is usually possible to talk about random assignment to conditions or some variable you held constant. But if you truly have no control procedures, instead give a brief explanation of why not.

A copy of the psy100 text will be available in the main office for reference.

Part II of the *Debriefing Package*, is the Receipt of Participation, which can be downloaded at (<http://home.psych.utoronto.ca/resources/researchers/psy100pool.htm>). This Receipt is critical as it is the students' only proof of participation if there is a problem with the online crediting system.