**Information Sheet**

**Study:** The effect of explicit learning on expectations and uncertainty in serial music

**Purpose:** In this study, we are testing the theory of predictive coding (PC) as it applies to the perception of atonal, specifically serial, music. Predictive coding is a framework explaining brain function. In this framework, the brain processes prediction error caused by a mismatch between its predictive models and incoming real-world information. Two types of predictions are generated: the contents of the event (what, when) and the likelihood of this event happening. The former is referred to as the 'prediction' while the latter is called 'precision'. It is possible to be very certain about something and be completely wrong as much as it is possible to guess and be correct!

Since the vast majority of music possess tonal hierarchy and Western listeners’ predictions are tailored to such a system, the PC framework predicts low prediction and precision for serial music. However, we are curious to see if this changes with explicit learning about and intentional exposure to serial music. The PC framework predicts better prediction but precision will remain low, where listeners end up ‘expecting uncertainty’. We will compare human data to a computational model called IDyOM (information dynamics of music) based on prediction and precision to see how well this model can imitate human performance. It does well for tonal music but has not been evaluated for atonal styles.

**What You Will Do:** This study is divided into two parts: one in the **first two weeks of the course** (before you’ve been exposed to and studied serial music) and one in the **last two weeks of the course** (after serial music). In both, you will be asked about your exposure and familiarity with serial music and perform three different ratings tasks answering three different questions while you listen to monophonic serial music phrases one note at a time. The questions are: 1) how surprising was the last note?; 2) how good of an ending was the last note?; and 3) how sure are you of what note is coming next? There are eight phrases in each session. You’ll be sitting in a double-walled sound proof booth and will be listening via over ear headphones. In addition, in the first part you will share some demographic information (age, gender, musical background) and in the second part you will be asked a few questions about your exposure to serial music and how your listening might have changed from the first to the second part.

**Length of Time, Location and Compensation:** This study should take about an hour for each session, for a total of 2h. It will take place in the Cognitive Aging and Auditory Neuroscience (CAAN) Lab in the Faculty of Medicine. To thank you for your time, you will be compensated $10 upon completion of each portion of the study, for a total of $20.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University’s ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at [icehr@mun.ca](mailto:icehr@mun.ca) or by telephone at 709-864-2861.

**How to participate:** Get in touch with the CAANLab at [caanlaboratory@gmail.com](mailto:caanlaboratory@gmail.com) to express your interest and schedule your first study session! This way, we’ll have your email and will get in touch to schedule the second session as the semester nears an end.

\*\*Note that this study is not a course requirement and Dr. Argentino will not know who does or does not participate in the study. Decision to participate or withdraw will have no bearing on your grade or any aspect of your student status.