**KNAW Master Class: Current Issues in (Visual) Working Memory**

The KNAW hosts a master class on current issues in (visual) working memory, supported by the *EPOS* and *Helmholtz* graduate schools. Three world-renowned experts will treat conceptual, modeling, and methodological aspects of working memory research. The master class is targeted towards PhD students in the cognitive sciences and neighboring fields, and assumes background knowledge on cognitive processes. Provided there is availability, others will be welcome too. Attendance is free and includes lunch and coffee/tea. Priority will be given to members of the *EPOS* and *Helmholtz* graduate schools, but we expect there will sufficient capacity for non-members. Furthermore, PhD students are invited (and strongly encouraged) to present their work or idea to the group, in 5 minute pitches, allowing for a lively interaction. This may be on any topic, not necessarily working memory.

**Date & Location**

Wednesday 26 June 2019
Trippenhuis, Kloveniersburgwal 29, Amsterdam

**Registration**

Registration is free but compulsory. The registration form can be found [here](https://docs.google.com/forms/d/e/1FAIpQLScxAInqcrVrHwStt7Df2emCBbNGZdNmcdj-xiF_-cdt6XNuGg/viewform). (https://docs.google.com/forms/d/e/1FAIpQLScxAInqcrVrHwStt7Df2emCBbNGZdNmcdj-xiF\_-cdt6XNuGg/viewform)

**Program**

9:30 Welcome, coffee & tea.

10:00 **Ed Awh**, University of Chicago, US: *Current Conceptual Issues in Working Memory*

11:30 PhD pitches: PhD students presenting their work or idea in 5 minutes (sign up)

12:15 Lunch (provided)

13:00 **Sebastian Schneegans**, University of Cambridge, UK: *Current Models of Working Memory*

14:00 PhD pitches: PhD students presenting their work or idea in 5 minutes (sign up)

15:15 **Rosanne Rademaker**, UC San Diego, US: *Current Caveats of Modeling Neuroimaging Data*

16:45 Closing

**Topic descriptions**

*Current Conceptual Issues in Working Memory*

Ed Awh – University of Chicago

Despite decades of research, we still do not agree on what working memory (WM) actually is. What is its definition? What are its neurophysiological underpinnings? And how does it relate to long term memory (LTM)? Many characteristics we have come up with for working memory also appear to hold for LTM, except that most would agree that LTM is not actively "in mind". I will argue that this "in mind" part provides a crucial distinction, motivated by neuropsychological evidence, as well as research on capacity limits. The WM-LTM relationship also appears important for the current debate on “activity-silent” working memory, referring to the empirical demonstration that information is still behaviorally accessible even when neural delay activity is temporarily interrupted prior to the behavioral response. Some scientists have even argued that WM does not require persistent neural firing activity at all, as neurons only demonstrate intermittent firing patterns. I will discuss to what extent the arguments in this debate hold, and what might be a viable alternative of operationalizing working memory, one which tries to pull together the different kinds of observations above in a framework that acknowledges the constant collaboration between WM and LTM.

*Current models of visual working memory*

Sebastian Schneegans – University of Cambridge

The study of visual working memory has been substantially influenced by the competition between various theoretical models that aim to explain capacity limits and other aspects of behavioral performance. These models not only differ in the proposed mechanisms underlying memory limitations, but also in the level of modeling. They range from purely descriptive models used in the analysis of behavioral data, over explanatory models on a conceptual or mathematically formalized level, to models of the neural processes underlying working memory states, described at various levels of physiological detail. I will describe and compare these various kinds of models and discuss their role for behavioral research of working memory.

*Current caveats of modeling human neuroimaging data*

Rosanne Rademaker – UC San Diego

At the dawn of the human neuroimaging revolution, it was probably the bright colors of univariate contrasts “lighting up” the virtual human brain, that spoke to the imagination of many (most importantly, funding agencies). Since then, many more sophisticated techniques have been developed, which greatly increase our chances of understanding the overarching computational principles that guide our behavior. However, along with the increased complexity of our techniques comes an increased potential for pitfalls. Here, I will highlight a number of popular multivariate analysis techniques, and some of the important caveats to keep in mind.