

ZNZ BLOCK COURSES

Ethics in Neuroscience

Organizer / Lecturer	J. Leach Scully, Arbeitsstelle für Ethik in den Biowissenschaften, University of Basel
Schedule	May 2012, exact date to be announced
Description	<ul style="list-style-type: none">- What is ethics/medical ethics/bioethics?- Research using animals, human subjects- Research on embryos, developing countries- Research using genetic information- Pharmacological enhancement- Moral responsibility- Memory, consciousness and identity- Concepts of normality, health and illness
Participants	min. 8
Information, Registration	Nadia Mouci Menard, 044 / 635 33 81 Email: mouci@neuroscience.uzh.ch
Credit points	1.5

Statistics for ZNZ Researchers

Organizer / Lecturer	C. Luchsinger, Luchsinger Mathematics
Schedule	2/3/5/6/10/11 & 12 July 2012
Description	<p>The course consists of the following parts:</p> <ul style="list-style-type: none"> - Probability - Random Variables - Expectations - Selected Probability Distributions - $n \rightarrow \infty$: Law of Large Numbers - Estimators and Confidence Intervals - Test theory, 1-Way-ANOVA - Regression, PairsRadio, Data Tschernobyl - SPSS Applications (Data Analysis)
Participants	min. 15
Information, Registration	<p>Nadia Mouci Menard, 044 / 635 33 81 Email: mouci@neuroscience.uzh.ch Registrations open in March 2012</p>
Credit points	2.5

Writing Neuroscience Research Papers

Organizer / Lecturer	Dr Simon Milligan
Dates	<i>To be announced July / September</i>
Description	<p>The course consists of three main elements:</p> <ul style="list-style-type: none"> • Linguistic components of better writing, such as correct word order and tense use, text linking elements, style and variety in vocabulary and structure • Specific language characteristics of research texts: textual strategies in writing abstract, introduction, results, discussion and conclusion sections • Self-help strategies for scientific writers, such as the effective use of model articles, language reference books, and online aids in checking style, grammar and usage.
Participants	max. 15
Information, Registration	Nadia Mouci Menard, 044 / 635 33 81 Email: mouci@neuroscience.uzh.ch
Credit points	1.5

ZNZ BLOCK COURSES

Lectures in Clinical Neuroscience

Organizer / Lecturer	J. Kesselring, Neurorehabilitation Clinic Valens
Schedule	<i>September or October 2012 – Exact date to be announced</i>
Description	Topics: Stroke, chronic neurological illness, peripheral neuropathies
Participants	min. 5
Information, Registration	G. Wyttenbach , 081 / 303 14 08 Email: g.wyttenbach@klinik-valens.ch
Credit points	0.5

ZNZ BLOCK COURSES

EEG-Felder und Hirnfunktionen

Organizers / Lecturers	P. Achermann, D. Brandeis, Peter Klaver, R.D. Pascual-Marqui, D. Umbricht, S. Brehm, L. Gianotti, Th. Koenig, U. Maurer, L. Michel
Schedule and Location	To be announced Brain Mapping Labor, Zentrum für Kinder- und Jugendpsychiatrie, Universität Zürich, Neumünsterallee 9, 8032 Zürich
Description	<p>Der Laborkurs soll die enge Beziehung der elektrischen Hirnaktivität (EEG, EP) mit normaler oder gestörter Informationsverarbeitung beim Menschen veranschaulichen, und Grundlagen und Möglichkeiten hirnelektrischer Feldmessungen (Brainmapping) vermitteln. Mit Laborführung, Messung spontaner und ereignisbezogenen EEG-Feldern in kognitiven Tests, und Auswertung/ Visualisierung am PC in Gruppen. Selbständige Besuche in anderen teilnehmenden Labors am letzten Tag.</p> <p>Weitere Themen (z.T. mit GastreferentInnen): raumorientierte Auswertung spontaner und evozierter Potentialfelder, ausgewählte Versuche, klassische und neue Befunde (Aufmerksamkeit, Sprache, Cognitive Neuroscience, Schlaf), laufende Arbeiten, klinische Relevanz (Neurologie und Psychiatrie), sowie Beziehungen zu anderen Techniken zur Hirnfunktionsmessung.</p> <p>The summer course will be held in English upon student requests.</p>
Participants	min. 5, max. 15
Information, Registration	<p>Einführungsliteratur (wird ca. 1 Monat vor Kursbeginn zugesandt, z.T. Englisch). Leistungsnachweis mit schriftlicher Arbeit (Fragen zu Kurs und Literatur, Abgabe innert 10 Tagen nach Kursende).</p> <p>Anmeldung bis Semesterbeginn an: Prof. Dr. Daniel Brandeis, 043 / 499 26 50 Email: maplab@kjpd.uzh.ch</p>
Credit points	2

Signal Analysis in Medicine and Natural Sciences

Organizer / Lecturer	A. Amann
Schedule	<i>To be announced</i>
Description	<p>The course starts with an introduction to MATLAB and then gives an overview of different methods for statistics and data analysis: Elements of robust statistics, (auto)correlation of data, Fourier theory, windowed Fourier transform, wavelet transform, state-space formalism, Kalman recursions, Kalman estimation and prediction theory, N(alpha)-histograms and nonlinear methods. Examples are taken from spectroscopy, ventricular fibrillation ECG, EEG-analysis, mass spectrometric analysis of volatile organic compounds in exhaled breath.</p> <p>The course will be held in English, and tries to be useful for master and doctoral students.</p>
Target audience	Researchers and graduate students in medicine, chemistry and physics. Attendants may bring their own experimental data for analysis.
Information, Registration	A. Amann, Email: anton.amann@i-med.ac.at
Credit Points	1.5

Advanced Neuroimaging Seminar

Organizer / Lecturer	J S. Kollias, Institut für Medizinische Radiologie, Universität Zürich
Schedule	<i>To be announced</i>
Description	<p>Familiarization with the various techniques used for non-invasive Structural imaging of the human brain and spine. Emphasis on magnetic resonance (MR) techniques.</p> <p>Introduction to fast MR techniques used for functional mapping of the Human brain. Introduction to the physiologic mechanisms underlying the functionally-induced MR signal. Familiarization with visualization and postprocessing methodologies used for the generation of functional maps of cognitive performance.</p> <p>Introduction to structural and functional anatomy of the normal human Brain. Application of functional MRI to clinical problems particularly in the investigation of cortical plasticity.</p>
Participants	12
Information, Registration	S. Kollias, 044 / 255 56 44 Email: spyros.kollias@dmr.usz.ch
Credit points	1

System Identification and Kalman Filtering

Organizer / Lecturer	A. Amann
Schedule	<i>To be announced</i>
Keywords	Introduction to MATLAB, use of training and test data, principal component analysis, independent component analysis, state-space formalism, Kalman recursions, estimation theory, control theory, Riccati equations, wavelets.
Description	<p>The course starts with an introduction to MATLAB and linear algebra and then focuses on Kalman state space analysis. Keywords are:</p> <ul style="list-style-type: none"> • correlation and autocorrelation of data • principal component analysis (PCA) • independent component analysis (ICA) • Kalman state-space formalism • Kalman recursions • Observability and controllability of Kalman systems. • Steady state solution of Kalman recursions • Riccati equation. <p>Examples are taken from ventricular fibrillation ECG, EEG-analysis, mass spectrometric analysis of volatile organic compounds in exhaled breath.</p>
Target Audience	Researchers and graduate students in medicine, chemistry, physics and economics. Attendants may bring their own experimental data for analysis.
Information, Registration	Amann, Email: anton.amann@env.ethz.ch .
Credit points	1