Overview of undergraduate teaching

The following table presents the teaching in 1st through to 3rd year. The 3rd year courses provide most of the BPS accreditation (4th year project completes it) and hence we are required to maintain the material taught in these modules. Furthermore, the 3rd year timetable is also set: the joint degree students complete 6 or the 8 half-semester modules and the two methodology modules over the course of two years and this is only possible if the timetable stays the same from year to year.

1000 level PS1001-2	History	Developmental & Evolutionary		Social	Neuroscience	Learning, memory, attention & emotion	Sensory systems & perception	Abnormal Alzheimer's, Parkinson's, depression, ADHD, Neglect	Methods
2000 level PS2001-2		Evolutionary		Social	Behavioural neuroscience	Cognition	Perception	Clinical	Methods
3000 level PS3021-38	Conceptual & theoretical issues	Evolution	Development	Social	Cognitive neuroscience	Cognition	Perception	Clinical	Methods

The top row is first year teaching, the middle row gives the second year and the bottom row gives the third year modules. The small font indicates aspects that are covered in the other sections/modules. Thus, while we do not have a section of first year teaching called cognition, students are taught some aspects (e.g. the neuroscience section includes 3 lectures on learning, 2 on memory, 1 on attention and 2 on emotion; neurobiological aspects of Alzheimer's, Parkinson's, depression, ADHD and neglect are covered that supplement the 4 first year lectures on abnormal psychology).

The sub-honours (1000 and 2000) level modules are compulsory for all honours psychology & neuroscience students. The numbers are relatively large (300-350 1st year, 150-250 2nd year)

The 3000 level modules are compulsory for all single honours psychology students and most are taken by joint honours students as it is only these that count towards BPS (along with PS4040 and a project module). The numbers are relatively large (90-120), especially compared to 4th year modules. Classes of this size can only be effectively taught using the traditional lecture format. Practical and methodological teaching requires substantial post-graduate help.

The fourth year (4000 level) modules are specialist and reflect the interests of the academics in the School (they are not constrained by BPS requirements). Wherever possible, they are taught as seminar series with students presenting their readings to complement the lecturer's teaching. So long as the core BPS requirements are met, we are always looking for new 4000 level modules. The main criteria is that they are different from each other, thereby exposing our students to as wide a range of advanced psychological topics as possible.

Curricula by area

The tables below indicate the main content areas covered during each of the three years in the academic year 2014-15. This is to provide an example of the range of teaching and will naturally evolve from this over time. It serves, however, to provide a framework in which proposed changes of teaching should be considered (the tables will be updated every few years).

Clinical curriculum

1st year	PS1002, mwo: Neurobiology of disorders (ACh & Alzheimer's; DA and Parkinson's; Huntington's and disgust perception	PS1002, mwo: Depression & learned helplessness; Depression & drug treatment (MAOIs, TCAs, SSRIs) PS1002, to7: Colour vision deficiency, hearing impairments, and synaesthesia	PS1001, jcg: Autism: Triad of impairments (imagination, socialisation & communication). Kanner (classic) and Asperger syndrome. Triad of theories (Theory of mind, executive function & central coherence (different cognitive style)	PS1002, mwo: Deep brain stimulation, neural prosthetics, using brain activation to probe patients with locked in syndrome. PS1002, DP: Optical deficiency early in life, deficits in perception of emotion, object, faces, motion following brain damage; autism, depression, conduct disorder. Visual control of action vs recognition following brain damage; Schizophrenia and recognising own actions.	PS1002, mwo: Drug addiction: rewards, homeostasis & opponent processes, basal ganglia and DA; Alcoholism, Korsakov's syndrome & mamilliary bodies
2nd year	PS2001, jaa: Neurodegenerative disorders (PD, AD, ALS Huntington's)	PS2001, ja7: Schizophrenia (DA hypothesis, hypofrontality, twin studies) and depression (neural basis, amygdala – PFC interaction, serotonin transporter gene)		PS2001, jaa: Consciousness (split brain patients, awareness in coma patients)	
3rd year	PS3032: Spatial cognition (spatial attention, spatial neglect), Executive function and executive dysfunction, Object perception and simultanagnosia	PS3032: Assessment in clinical psychology. Individual differences, normal distribution, behavioural and neurobiological assessment, evaluating assessments.	PS3032: the importance of understanding disease mechanisms for designing assessment methods and rehabilitation strategies	PS3033: Developmental theories explaining the social deficit in autism ('Theory of Mind' vs more recent embodied explanations) PS3035: Cognitive Control: State and Trait Anxiety, Externalizing vs Internalizing Personalities, Aging, Depression	PS3037: Amblyopia and plasticity as a tool for visual therapy. PS3037: Restoring Vision in later life: vision after congenital cateract surgery PS3037: Motion blindness and anatomy of motion-specific brain areas. Colour blindness, both cortical and congenital.

Key: Normal sized 12 point font indicates material covered within the relevant section or module (e.g. neuroscience related material covered in the neuroscience section taught in first year). Small (10 point) red font indicates material relevant to one section that is taught in another section (e.g. neurobiology and some symptomology of Parkinson's disease is taught in the neuroscience section of first year).

Cognition curriculum

1st year	PS1002, mwo: Learning (classical & operant conditioning; fear conditioning & amygdala; Thorndike's law of effect; 2nd order vs blocking, contiguity & contingency; Rescorla-Wagner model; equi-potentiality; reinforcement schedules)	PS1002, mwo: Memory (explicit vs implicit; Modal model and working memory models; role of hippocampus & frontal cortices)	PS1002, mwo: Attention (focused, divided, and sustained; core idea of limited capacity; early & late filtering models) PS1002, dp: interactions between attention and perception. Top down models of perception. Imagery.	PS1002, mwo: Emotion: Hull's drive reduction theory; James-Lange interpretatist model; Schacter & Singer's attribution theory; Dutton & Aron's misattribution; Universality of expression; Micro-expressions	PS1002, mwo: Models of emotion: Plutchick's evolutionary model, socio-evolutionary models, strong vs moderate constructionism (Averill vs Barrett) PS1002, dp: Language and perception. Action and perception interactions. Illusions and aftereffects
2nd year	PS2002, bd9: development of spatial cognition; development of imagery, Object recognition	PS2002, bd9: Working memory and executive function; autobiographical memory; eyewitness testimony & forgetting PS2001, jaa: Memory (declarative/non-declarative, neural systems supporting spatial and episodic memory, place cells, grid cells, cognitive map and animal models of memory)	PS2002, bd9: Attention; Reading, language PS2001, jma: Language and Perception (Sapir-Whorf Hypothesis: Understand the different hypothesis, understand key experiments in the field incl World color survey & Winawer et al. Russian blue. The BBC Davidoff Video)	PS2002, bd9: Cognition & emotion PS2001, rwb: Learning and social learning; association theory, types of conditioning; constraints on learning; social learning; stimulus enhancement and response facilitation; imitation and affordance learning.	PS2002, bd9: Expertise PS2001, rwb: Evidence of intentionality in animals: knowledge/ignorance, attribution of intent, role-taking, mirror self-understanding.
3rd year	PS3038: Attention, decision making, and logic & reasoning. PS3032: Spatial cognition (spatial attention, spatial neglect), Executive function and executive dysfunction, Object perception and simultanagnosia	PS3038: memory & history effects in behavioural data PN3313: Memory types, Mechanisms for implicit and explicit memories, habituation and sensitization in aplysia, hippocampal LTP/LTD and spatial memory formation, place cells and grid cells.	PS3035: Individual variations affecting Cognitive Control: State and Trait Anxiety, Externalizing vs Internalizing Personalities, Aging, Depression	PS3038: Introduction to computational approaches and experimental paradigms in cognitive research PS3035: Cognitive Control: The control homunculus, modularity hypothesis); basic experimental paradigms; Neuroanatomy of cognitive control; computational modelling;	PS3037: Unusual colour experiences: synaesthesia PS3037: Complex motions: recognition of animacy in human and animal forms

Developmental & evolutionary curriculum					
1st year	PS1001, jcg: Piaget: babies, object permanence; modern infant cognition, child cognition after Piaget; PS1002, dp: comparative and developmental perspectives on visual development	PS1001, jcg: Language acquisition, social cognitive approach to language acquisition	PS1001, jcg: Social development, theory of mind, evolution of social cognition	PS1001, jcg: Autism. Triad of impairments (imagination, socialisation & communication). Kanner (classic) and Asperger syndrome. Triad of theories (Theory of mind, executive function & central coherence)	PS1002, mwo: Models of emotion: Plutchick's evolutionary model vs socio-evolutionary models vs Averill & strong constructionism, Barrett & moderate constructionism
2nd year	PS2001, rwb: Evidence for evolution and natural selection; Mendel's theory and particulate inheritance; NeoDarwinism; Darwinisn fitness, gene as the unit of selection; punctuated equilibria controversy; niche selection; convergent evolution, limits to optimality; causes of species change; grades & niches;	PS2001, rwb: socioecology; selection at gene level; Hamilton's r; kin selection, altruism; group selection and ESS; eusociality; functional and causal explanations; bluff and honest advertisement; ornament and female choice; sexual selection, handicap theory.	PS2001, rwb: Humans as primates, explaining primate taxonomy; human origins as revealed by fossil evidence (including Neanderthals, heidelbergensis, erectus, ergaster, habilis, Australopithecines, ramidus etc.); early humans, spread, cognitive innovations, Out of Africa and Molecular Eve hypotheses.	PS2001, rwb: Limitations of evidence in palaeoanthropology; comparative method, cladistics reconstruction of ancient traits. PS2001, rwb: Learning and social learning; association theory, conditioning; constraints on learning; social learning; stimulus enhancement and response facilitation; imitation and affordance learning.	PS2001, rwb: Early evidence of intentionality in animals: knowledge/ignorance, attribution of intent, role-taking, mirror self-understanding.
3rd year	PS3033: Hunter-gatherer childhoods (as a model for ancestral childhood) and extended childhoods in an evolutionary and comparative context.	PS3033: Cumulative Culture (imitation fidelity, over-imitation, cooperation and/or teaching in infants and children, conformity at the expense of personal information and normativity in young children)	PS3033: Joint Intentionality: development from infancy (understanding intentionality, sharing emotions, communicative pointing. Critiques (lean interpretations and relational explanations)	PS3033: Developmental theories explaining the social deficit in autism ('Theory of Mind' vs more recent embodied explanations)	PS3037: Development of vision: vision during the first few months of life. Methods to measure visual and cognitive performance in infants.

Methodology curriculum

1st year	PS1001: What is science? Theories & hypotheses. Experimental and quasi-experimental designs. Within, matched & between subjects designs. Independent, dependent & confounding variables. PS1001: Types of measures, frequency tables & histograms, bar chart & box plots.	PS1001: Measures of central tendency (mean, median, mode) and dispersion (range, IQR, variance SD). Skewness & kurtosis. Standardised measures: Z-scores. PS1002: Non-parametric statistics. Wilcoxon t-test, Mann-Whitney-U test PS1002: Chi-squared. As goodness of fit. As test of association.	PS1001: Inferential statistics. 1 vs 2-tailed tests, type 1 & type 2 errors. Standard error of the mean. T-tests (paired and between subjects) PS1002: Bivariate analysis: Correlation and simple linear regression.	PS1002: Designing & running a small group project. Ethics, validity & reliability. PS1002: Writing lab reports. Content and aims of abstract, introduction, methods, results & discussion. Use of figures and figure legends.	PS1002, TO7: Introduction to Psychophysics, Weber, Fechner, JND, Signal detection theory. PS1002: Neuroscience methods: CRT, MRI, fMRI, EEG, single unit, lesions, TMS; spatio-temporal resolution PS1002, dp: Perception practical, experiments and analysis of individual differences in perception
2nd year	PS2001-2: Describing data (types of scale; measures of central tendency and dispersion; relationships between mean & variance; central limit theorem) PS2001-2: Correlation (Excel, SPSS) and linear regression (SPSS), including overviews of nonparametric alternatives to correlation and multiple linear regression.	PS2001-2: Principles of univariate analysis: Underlying models with a view to aiding transition from critical value lookups to understanding the relationship between critical values, test statistics and p-values.	PS2001-2: Univariate analysis (Excel, SPSS) including z-scores, t-tests & ANOVA (including 2-way, fixed/random factors, within subjects & mixed designs) and overview of their nonparametric alternatives.	PS2001-2: Writing lab reports. Using theory to formulate hypotheses. Using and reporting statistics to test hypotheses. PS2001, ja: Common statistical errors (Texas sharpshooter, file-drawer, multiple comparisons)	PS2001: Psychophysics & signal detection theory (how to "ask" the brain, not the human, about what it "perceives", why "bias" is problematic, the concepts of sensitivity and specificity, why "percent correct" can be misleading)
3rd year	PS3021: Philosophy of science (Epistemology; induction vs deduction; logical positivism. Outline of Popper, Lakatos, Kuhn, Feyerabend & Laudan; the Duhem-Quine problem). PS3031: Philosophy of Science; rationalism and empiricism; the history of psychology as a science. PS3038, to7: Model based approaches in cognitive research. Reaction times and mental chronometry. Logic and hypothesis testing.	PS3021: Describing data & SPSS (types of scale; central tendency & dispersion; CLT and its limitations; graphing data. Frequentist (Neyman-Pearson) vs Bayesian approach. PS3035: Lesions, TMS/tDCS, PET, fMRI, EEG/ERP, MEG, Optical Imaging; spatio-temporal resolution; spatial and temporal integration). PS3032: CT, MR, VBM, VLBM, fMRI in stroke, TMS in stroke	PS3021: Univariate analysis: z-scores to ANOVA (post-hoc). PS3021: Bivariate analysis: Covariance, correlation & regression. Relationship between regression and the ANOVA family PS3037: How to read a (vision-related) research paper and extract the key elements of the science and methodology.	PS3021: SPSS & Non-parametric data; Failures in the assumptions and what to do about it. PS3022: Students demonstrate phenomenon at a science fair; write a report in accessible style. PS3037: Perception methods (behaviour, psychophysics). Precision and accuracy. Measuring visual and cognitive performance in infants. Adaptation and after-effects for probing brain function.	PS3022: Using path models to describe theoretical relations in regression and factor model. Multiple regression, sequential regression, path analysis rules, mediation/moderation analyses; factor analysis and reliability. PS3022: Qualitative research methods

Neuroscience curriculum					
1st year	PS1002, mwo: Recap of gross anatomy (CNS vs PNS; hemispheres; hind- mid- & fore-brain; lobes). Pathways (sensory &, motor; primary & secondary cortices) PS1002, to7: Gross brain anatomy, neurons, and basic electrophysiology.	PS1002, mwo: Neuronal function (membrane potential, action potential; electrical & chemical synapses; ionotropic vs metabotropic; learning & memory: mechanisms of LTP) PS1002, to7. Sensory systems: Transduction processes from physical signals to the first action potential. Pathway to cortex, definition of receptive fields, topographic brain organisation.	PS1002, mwo: EEG from sleep to aroused; Sympathetic system & GSR; Eating & the hypothalamus. Emotion: Amygdala & fear; insula & disgust PS1002, dp: neuroscience of processing of contours, visual grouping, objects, faces, emotion and visuo-motor control of action.	PS1002, mwo: Methods (CRT, MRI, fMRI, EEG, single unit, lesions, TMS; spatio-temporal resolution)	PS1002, mwo: Memory: interplay between hippocampus, frontal cortices etc. PS1002, mwo: Attention: commonality of brain structures across different types of attention
2nd year	PS2001, jaa: Motor control and action selection (motor cortex, SMA, premotor cortex and cerebellum). Link into mirror neurons and autism.	PS2001, jaa: Synaptic function and action potentials (action potentials, receptors, information processing). Psychopharmacology (including neurotransmitter systems)	PS2001, jma: Physiology of vision (the retina, rods & cones, information coding, transmission to cortex, neurones in cortex); Physiology of hearing (function of hearing, what sound is and how to characterize it, basic anatomy of the auditory system (basilar membrane and hair cells)	PS2001, jaa: Sleep (including neural mechanisms, disorders, sleep deprivation and circadian rhythms). Fear and emotion (amygdala and PFC circuitry, extinction, cognitive control and reconsolidation)	PS2001, jaa: Memory (declarative/non-declarative, neural systems supporting spatial and episodic memory, place cells, grid cells, cognitive map and animal models of memory)
3rd year	PS3035: Neuroanatomy of cognitive control;	PN3313: Electrical & chemical synapses, ionotropic and metabotropic receptors, short- and long-term plasticity, synaptic integration & simple synaptic connections, classical conditioning, neuromuscular junctions	PS3037: Linking behaviour to neuroscience: mapping psychophysical channels onto neural population responses. PS3037: Colour in the brain, relationship between theories and measurements of human vision and the neuronal function of colour pathways. Anatomy and neurophysiology of colour and motion-specific brain areas.	PS3035: Methods (Lesion studies, TMS/tDCS, PET, fMRI, EEG/ERP, MEG, Optical Imaging; spatio-temporal resolution; spatial and temporal integration) PS3032: Neuropsychology PS3037: Adult visual plasticity: plasticity in a normal population and how it is measured.	PN3313: Memory types, Mechanisms for implicit and explicit memories, habituation and sensitization in aplysia, hippocampal LTP/LTD and spatial memory formation, place cells and grid cells

Perception curriculum					
1st year	PS1002, to7: Touch. Transduction processes from physical signals to the first action potential. Pathway to cortex, receptive fields and topographic organisation in the brain	PS1002, to7: Vision. Transduction processes from physical signals to the first action potential. Pathway to cortex, receptive fields, retinopic organisation. Colour: from sensation to perception PS1002, mwo: Imagery & perception involve activation of the same/similar cortical areas	PS1002, dp: perception of contours, groupings, objects, faces, emotions, motion depth and distance, illusions. Perception and action, perception and attention, top down control of perception. Development of perception	PS1002, to7: Audition & vestibular. Transduction processes from physical signals to the first action potential. Pathway to cortex, receptive fields, tonotopic organisation.	PS1002, to7: Smell & taste. Transduction processes from physical signals to the first action potential. Pathway to cortex, receptive fields. PS1002, to7: Multisensory integration, Synaesthesia.
2nd year	PS2001, jma: Touch, Temperature, Proprioception & Pain. Mechanoreceptors and transduction. Pathways to the brain. Reflexes. Tactile representation PS2001, jaa: Consciousness (split brain patients, selective attention, awareness in coma patients)	PS2001, jma: History of Scientific Study of Light & Vision (illustrated by colour) PS2001, jma: ColourColour perception (univariance, trichromacy, opponent processing, metamers), colour blindness, why trichromacy evolved in old world primates	PS2001, jma: Role of motion perception, different types of visual motion, Hassenstein-Reichardt correlator (HRC), aperture & correspondence problems, akinetopsia , MT response is linked to motion perception	PS2001, jma: Hearing & Perception. Place & rate coding, sound localisation. Sound perception, McGurk effect. PS2001, jma: Vestibular system. Linear acceleration, angular motion, gravity. Anatomy (semicircular canals, otoliths). Disorders	PS2001, jma: Smell & Taste. Olfactory receptors (shape and vibration theories discrimination of chemicals, smell vs other senses. Strong memory and emotion linkages, (probably) oldest sensory modality, direct connections to cortex)
3rd year	PS3037: Principles of perceptual theories. Methods (behaviour, eye movements, psychophysics, imaging). Visual Psychophysics. Methods of measuring behavioural performance. Precision and accuracy as performance measures.	PS3037: Colour perception: Theories (Hering, Young-Helmholtz). Colour matching, & constancy. Colour pathways and their neurons. Synaesthesia. PS3032: Visual attention, visuospatial localization PS3038, to7: Categories of attention, visual search, and inattentional blindness	PS3037: Motion: for a moving observer, motion blindness, brain areas. Adaptation and after-effects to probe visual brain function. Animacy and emotion. Depth and distance perception, and monocular and binocular cues to each	PS3037: Spatial representation. Simple visual stimuli, sinusoidal gratings. Spatial frequency channel model of early vision. How behaviour and psychophysical channels map onto neural population responses.	PS3037: Vision in the first months of life. Measuring visual and cognitive performance in infants. Restoring vision. Measuring adult plasticity. Amblyopia and plasticity in visual therapy. Culture and environment on visual perception.

Social curriculum					
1st year	PS1001, sdr: the historical context of social psychology: the rise of mass society in the 19th century; dictatorship and genocide in the 20th century	PS1001, sdr: the shift from dispositional to situational explanations of social behaviour and the great studies (Sherif, Asch, Milgram, Zimbardo) which show the power of social context and of social groups	PS1001, sdr: Understanding the psychology of groups. The minimal group studies, social identity and self-categorisation theories PS1002, mwo: Social influences and misattribution of emotion (Schacter & Singer; Dutton & Aron) and social constructionist models emotional processing (e.g. Averill, Barrett).	PS1001, sdr: Applying group psychology to various facets of group life, both good and bad: prejudice and discrimination; helping and solidarity; leadership and influence	PS1001, jcg: Social development, theory of mind, evolution of social cognition. Social cognitive approach to language acquisition PS1002, dp interpersonal attraction; social interactions and emotion perception, understanding actions and intentions of others
2nd year	PS2002, sdp21: Social cognitive perspective on the self, self-motives, self-enhancement across cultures, attribution	PS2002, sdp21: Implicit and explicit attitudes, attitude change, cognitive dissonance, dual process theories of persuasion	PS2002, sdp21: Group productivity, deindividuation, social influence, leadership and power PS2001, rwb: social learning; imitation and affordance learning.	PS2002, sdp21: Prejudice and discrimination, stereotype content, ambivalent sexism, stereotype threat, outgroup favouritism, collective action, intergroup contact	PS2002, sdp21: Helping, empathy, bystander effect, intergroup helping, cultural differences in helping, frustration-aggression, catharisis, narcissism, dehumanisation, honour culture
3rd year	PS3034, NT: Prejudice: definitions, levels of analysis & methodologies; history of approaches; attitude structure; implicit vs. explicit measurement; forms of discrimination; theories of contemporary prejudice; dehumanization; objectification; ambivalent sexism	PS3034, NT: Group behaviour & prejudice. Individual-level approaches; evolutionary approaches; fitness-relevant threats; personality approaches; generalized prejudice; authoritarian personality/right-wing authoritarianism; social dominance orientation; dual-process model; cognitive ability & prejudice	PS3034, NT: Group-level approaches; realistic group conflict theory; relative deprivation theory; social identity theory; social structure & social change; power; individualism (social mobility, tokenism, queen-bee syndrome); paternalism (benevolent sexism & helping)	PS3034, NT: Individual-level interventions; models of social categorization; intergroup contact; empathy & perspective taking; social norms; critiques of individual-level approaches PS3035: Effects of culture and environment on visual perception	PS3034, NT: Group-level approaches to social change; models of collective action (grievance & instrumental models, social identity); group emotion; integrating contact & collective action models; intergroup solidarity; radical collective action & terrorism

Other in curriculum				
1st year	PS1001, jcg: Brief history of psychology	PS1002, dp: Perception practical, experiments and analysis of individual differences in perception		
2nd year	PS2001, jma: ESP (Or how flawed research gets published). History and current state of ESP research, the issues surrounding ESP research and the methodological flaws that are exposed by many of these experiments. Discover how these flaws are present in many conventional experiments – what does ESP research have to tell us about conventional psychology? Understand common statistical errors (Texas Sharpshooter Fallacy, File Drawer Effect, Multiple Comparisons)			
3rd year	PS3035: Individual variations affecting Cognitive Control: State and Trait Anxiety, Externalizing vs Internalizing Personalities, Aging, Depression			
	PS3031: Individual differences – Personality; Intelligence; Nomothetic and idiographic approaches; models of mental health. Identity and Embodiment	PS3031: Beliefs, Concepts and categories. Brains, minds and machines. reductionism ; Freewill and determinism	PS3031: Psychology and Society; Criticisms of Psychology; WEIRD participants; psychology as anthropology	PS3031: Freudianism, behaviourism, humanistic psychology. Social Constructionism; Positive Psychology