Examples of BSc Project Titles

Please select the links below to see a list of projects which have previously been available in each BSc course.

Please note that these projects will not be available in 2015/16. These lists are intended to give you an idea of the type of projects offered.

Cardiovascular Sciences
Endocrinology
Gastroenterology and Hepatology
Global Health
Haematology
Immunity and Infection
Neuroscience and Mental Health
Pharmacology
Reproductive and Developmental Sciences
Respiratory Science
Surgery and Anaesthesia
Cardiovascular Science

- Action potential propagation dependence on gap junctional coupling in 2D cultures
- 3D printing of complex anatomy. From Patient to Plastic
- Dual Anti-Platelet Therapy for the Prevention of Major Adverse Cardiac Events and Saphenous Vein Graft Failure in Adult Patients Undergoing Coronary Artery Bypass Graft Surgery: A Systematic Review and Meta-Analysis of Randomised Controlled Trials.
- The safety and efficacy of immediate, pre-emptive platelet transfusion in patients undergoing coronary artery bypass graft surgery
- Investigation of the effects of IL-6 on human induced pluripotent stem-cell derived cardiomyocyte calcium handling properties.
- Macrophage activation in a model of atherosclerosis in zebrafish
- Outcomes in End-Stage Renal Failure Patients Undergoing Cardiac Surgery
- The effects of various physiological stressors on action potential duration (APD) and conduction velocity (CV) dispersion in the human heart in vivo
- Comparison of Left Ventricular Ejection Fraction by Two Different Image Processing Algorithms Using a Novel Solid State Gamma Camera
- The role of ventricular repolarisation dispersion in determining susceptibility to ventricular tachyarrhythmias in patients with ventricular ectopy.
- The Impact of Endothelial Function on Postoperative Acute Kidney Injury in Adult Patients undergoing Cardiac Surgery
- Development of new ways to study inherited cardiomyopathies based on engineered heart tissue using a mouse model of hypertrophic cardiomyopathy.
- Vascular migraines and pulmonary arteriovenous malformations
- Human heart valve: identification of a new mechanosensor
- The molecular mechanism of HCM investigated in single myofibrils and the potential of CA2+ desensitising drugs to restore HCM myofibrils to normal
- Cellular abnormalities underlying electrogram fractionation
- Changes in conjunctival blood flow during cardiac surgery
- Electron tomographic analysis of myosin-binding protein C in rat cardiomyocytes
- Investigating Hippo-YAP pathway in human pluripotent stem cell-derived cardiomyocytes
- The effects of the HCN channel inhibitor Ivabradine on cardiac fibroblasts studied in a multicellular environment
- The inter-relationships between central and peripheral BP levels and the size of abdominal aortic aneurysms in those randomised to the AARDVARK trial
Endocrinology

- Comparison of day 5 post-operative serum cortisol and dynamic assessments of the Hypothalamo-Pituitary-Adrenal (HPA) axis in patients following pituitary surgery.
- Change in insulin requirements in obese type 2 diabetic patients undergoing rapid weight loss in response to a 600 calorie weight loss program
- Survival in patients with gut Neuroendocrine Tumours
- Effect of increased propionate in the colon on glucose and lipid metabolism.
- Biochemical, physiological and psychological changes in athletes with type 1 diabetes
- Does over-expression of the human variant of PASK G1117E lead to abnormal glucagon secretion?
- Influences on insulin dose requirements and clinical remission after presentation with Type 1 diabetes: an ADDRESS-2 Study analysis
- Clinical Audit of Prevalence and Correlates of Vitamin D Deficiency in Adults after Traumatic Brain Injury
- Establishing thermal imaging as a method for measuring human brown adipose tissue (hBAT) activity.
- Investigating the role of vagal gut hormone receptors in gut-brain signalling
- Investigating the effects of gut hormones on appetite and behaviour.
- Investigation of the diagnostic utility of Cocaine and Amphetamine-Regulated Transcript (CART) in the management of pancreatic neuroendocrine tumours (pNETs).
- Genetic, clinical and behavioural analysis of morbidly obese patients undergoing bariatric surgery
- Skeletal role of Peptide YY (PYY)
- Role of sorcin in pancreatic beta cells viability and apoptosis
- Microvascular complications and obesity-comorbidities 5 years after bariatric surgery
- Investigating Magnesium Requests in the Community
- Genetic, clinical and behavioural analysis of morbidly obese patients undergoing bariatric surgery
- Examining the effectiveness of single vs. multiple sample collection strategies in sperm cryopreservation for patients with cancer
- Identification of causal genes affecting type 2 diabetes risk at the VPS13C locus.
- Pregnancy outcomes in patients who have undergone bariatric surgery
- Comparing the effects of therapies for the treatment of Type 2 diabetes
- What is the occurrence of obstructive sleep apnoea within obese Type 2 diabetes patients treated with insulin?
Gastroenterology and Hepatology

- Studying the role of the c-Jun N-terminal kinase signalling pathway in tumour biology
- Clinical outcomes of fibroscanned-patients at St Mary's Hospital
- Does response to interferon free treatment in HIV/cirrhotic patients differ from mono infection?
- Hepatitis C Screening: Would birth cohort testing in the UK be a sensible case finding strategy?
- Molecular mechanisms behind the use of low dose Naltrexon in inflammatory bowel disease, at the Erasmus University in Rotterdam
- Genetic risk factors for Colorectal Cancer (Literature review)
- Endoscopic and histologic predictors of outcome for anti-TNF therapy in Crohn’s disease
- An analysis of outcomes for ablation therapy in hepatocellular carcinoma
- Tenofovir vs entecavir: a real life experience of management of hepatitis B
- Evaluation of the effectiveness of periampullary and duodenal Botumlinum toxin injection for sphincter of oddi dysfunction
- The incidence of bile acid diarrhoeal symptoms in patients with NASH.
- Postion change in colonoscopy. A randomised controlled trial comparing two different postioning strategies during colonoscopy. (Project 1)
- Patient satisfaction in a novel multidisciplinary Hepatocellular carcinoma clinic.
- Assessing the gut microbiome in children with Crohn's disease: Effect of a new Crohn's-specific diet'.
- Postion change in colonoscopy. A randomised controlled trial comparing two different postioning strategies during colonoscopy. (Project 2)
- Optimising medical therapy in Inflammatory Bowel Disease
- Stem cell biology and colorectal carcinogenesis (laboratory)
- Characterisation of hepatitis B in Indigenous Australian populations (with a chance to travel)
- Characterisation of colorectal liver metastases
Global Health

- Risk behaviours that may correlate with HIV acquisition and maternal and child health in a rural Ugandan setting Kyamulibwa
- The Impact of Population Immunity on the Tempo of Influenza Evolution
- Reappraising the role of Giardia in malnutrition, stunting and environmental enteric dysfunction
- HIV Treatment Cascades for children
- Is opisthorchis intensity of infection and/or associated morbidity affected by parasite genotype?
- Designing interventions to optimize adherence for adolescents living with HIV in sub-Saharan Africa
- Climate change in Bangladesh: implications for health
- Knowledge and attitudes of staff to routine HIV testing in urgent care services
- Air pollution and DNA methylation as long-term marker
- Modelling monitoring strategies for HCV treatment
- Water contaminants and their effects on DNA and mRNA
- Knowledge and attitudes and preparedness of staff to potential cases of Ebola infection in emergency department
- Climate change in Bangladesh: implications for health
- Own project - "Factors that influence morbidity and mortality in civilian victims of terrorist attacks: a systematic review".
- Systematic review and meta-analysis of the effectiveness of influenza vaccination in diabetes mellitus
- Longitudinal risk factors associated to children’s and adolescents’ dietary diversity in low- and middle-income countries
- The impact of student organisation in the growth of global health education in the UK
- HIV testing in Global Fund programs- Analysis of financing and targeting of investments 2008 - 13
- HIV test coverage in sex workers: a systematic review and meta-analysis
- Systematic review of the sex-ratio of HIV epidemics in sub-Saharan Africa during early epidemic growth phase
- Burden of health problems in a rural Ugandan setting Kyamulibwa
- The cost and cost-efficiency implications for inclusion of micronutrient powders (MNPs) in school feeding programmes
- Child labour and mental health in low and middle income countries.
Haematology

- A National sickle cell tertiary centre survey of standard treatment of chest crises in children with sickle cell disease
- Essential self-regulation of BCR-ABL1 protein levels through its kinase activity?
- Protein Expression of Hedgehog Signalling Pathway Components in Chronic Myeloid Leukaemia
- The role of red cell distribution width in the stem cell transplantation setting
- Evaluation of RhoB prenylation in chronic hypoxia-induced pulmonary hypertension
- Multiplex qPCR for Copy Number Variation Detection in Diamond-Blackfan Anaemia
- The incidence and outcome of EBV positive diffuse large B-cell lymphoma of the elderly and its immunophenotype in a UK cohort
- Characterization and development of Proteasome Envelope Agonists (PEAs), novel proteasome-targeting compounds for use against Multiple Myeloma
- The role of CLIC4 in the regulation of leukocyte adhesion and transmigration through pulmonary endothelium
- The role of coagulation factor V in the TFPI-protein S anticoagulant pathway
- Outcomes of CML patients with variant Philadelphia translocations and additional cytogenetic abnormalities at diagnosis
- The role of thromboelastometry and PFA-100 in severe sepsis
- Application of Total Thrombus-formation Analysis System, a novel assay of platelet function, to detect differences between patients undergoing PCI
- Evaluation of Androgen function in long-term survivors of stem cell transplantation
- Incidence of vascular thrombotic events in patients with CML treated with TKI
- The role of N-linked glycosylation in expression and function of ADAMTS13
- ADAMTS13 allostery - defining mechanisms of ADAMTS13 specificity and activation
- The role of endothelial BAMBI in haemostasis
- The mechanism of enhanced spacer domain binding to VWF in the gain of function ADAMTS13 variant
- Targeting intracellular protein metabolism in multiple myeloma
- Transcription factor de-regulation in multiple myeloma
- Characterising the cleavage of Von Willebrand Factor by ADAM28
Immunity and Infection

- Effect of pulsed methyl prednisolone on disease severity, viral load, inflammation in patients with HTLV-1-associated myelopathy
- Evolution of Streptococcus Signalling in vivo
- Making and testing HPRT-specific CRISPR/Cas9 nucleases.
- Killers to the rescue – caspases in host defence.
- Capsule biosynthesis induction during pneumococcal infection in vivo
- Effects of a novel autoantibody on the extracellular degradation of low density lipoprotein by macrophages
- HIV/HTLV co-infection
- A project to assess three different methods to analyse cerebral metabolites measured on 1-H magnetic resonance spectroscopy.
- The role of the Streptococcal inhibitor of complement in invasive Group A Streptococcus infection
- Regulation of atherosclerosis by TPL-2 kinase
- The interplay between chronic interleukin-8 mediated inflammation and adaptive immunity
- Role of Gadd45β in macrophage differentiation and function
- MHC recognition by the T cell receptor
- Purification and characterisation of complement factor H-related proteins
- Suppression of the inflammasome by RSV SH protein
- Structural and biochemical analysis of type IV pili (Tfp) produced by Streptococcus sanguinis, a Gram-positive human pathogen
- Do lipoproteins influence factor H protein family complement regulation?
- The role of the SOS response in phenotype-switching of Staphylococcus aureus
- Investigating the role of NK cells and their activating receptors in the development of Hepatocellular carcinoma (HCC)
Neuroscience and Mental Health

- Multi-sensory integration in the parietal lobe in health and disease
- Characterisation of new optogenetic tools
- The effect of postnatal depression in mothers and fathers on children’s early development: exploring cumulative risk.
- Clozapine for people with personality disorder
- Comparison of health anxiety outcomes in patients with and without serious medical illness - extension to the CHAMP study
- Investigation of the relationship between the human GABA system and addiction: a study in pathological gamblers and healthy volunteers
- Assessing consciousness in fronto-parietal patients
- How accessible are computer games for motor stroke rehabilitation?
- Can structural changes in vascularity on brain MRI be used as a surrogate marker for stroke recovery?
- Epigenetic marks in axonal regeneration
- Systematic review and meta-analysis of animal models of chemotherapy-induced peripheral neuropathy to determine the impact of experimental bias on outcome.
- Is TLR-2 antibody administration neuroprotective in the Parkinson’s disease and if so is neuroprotection mediated via a decrease in the innate inflammatory response.
- Outcomes in stroke following acute intravenous thrombolysis - Impact of ethnicity.
- EEG assessment of Post-traumatic amnesia following traumatic brain injury
- An fMRI project investigating the consistency of functional brain networks across task contexts and across patient populations
- Assessing risk of alcohol misuse on cognitive impairment
- Multi-sensory integration in the parietal lobe in health and disease
- Assessment of brainstem serotonergic function in Parkinson’s disease with (123I-FP-beta-CIT) SPECT and relationship with motor and non-motor symptoms
- An fMRI project investigating the relationship between individual differences in ability and brain functional connectivity
- Clinical Audit of the effect of Botulinum toxin on non-motor symptoms in patients with primary dystonia and essential tremor
- Continuities and discontinuities in neuropsychological and psychiatric sequelae following critical Illness: A one year follow-up of children with identified neuropsychological impairment after paediatric intensive care admission.
Pharmacology

- Effect of pulmonary surfactant on engineered nanoparticle bioreactivity in the lung
- Shortened duration multiple breath washout (MBW) measurements in children with respiratory disease
- Are the epigenetic changes detected in the cortex of the lactacystin model of Parkinson's disease due to the loss of cortical projections from the ventral tegmental area and are these reversed by the HDAC inhibitor valproate
- Establishing a role for TRPM8 in airway disease
- Effects of Slit2 on migration and proliferation of pulmonary artery smooth muscle cells: a potential pharmacotherapy for pulmonary artery hypertension?
- The sensitivity of the electrocardiogram to diagnose left ventricular hypertrophy
- Do currently available anti-depressant drugs demonstrate consistent superiority above placebo?
- Mechanisms of stretch-mediated activation of pulmonary cells
- Investigating the pharmacological and toxicological effects of paracetamol and its non-toxic isomer.
- Neurotoxic potential of N2O vs argon in vitro
- Understanding androgen receptor action in vivo.
- The neuronal amino acid transmitters as targets for the treatment of epilepsy
- Still looking for a disease-modifying treatment for Alzheimer's disease, where is the problem?
- What triggers arrhythmias in HL-1-6 cell line?
- Disrupted iron homeostasis in Pulmonary Arterial Hypertension
- Elucidating the role of endogenous nitric oxide synthesis inhibitors in vascular superoxide production.
- Prolonged opioid-induced changes in the excitability of primary sensory neurons
- Establishing a role for TRPM8 in airway disease
- Characterisation of Hedgehog signalling in 3D culture of lung adenocarcinoma cells
- Analysing data from the 'Airwaves' study.
- Investigating The Role of Polarity Regulators in COPD and Lung Cancer
- The effect of iron chelators on APP processing and epigenetic changes in an in vitro model of Alzheimer's disease
- Drug repositioning by data fusion over similarity networks
Reproductive and Developmental Sciences

- Investigation of the effects of environmental exposures on human breast milk composition
- Snoring as a risk factor for asthma.
- Systematic review of the effects of different types of infant feeding on risk of allergic and autoimmune diseases
- Fetal, neonatal and infant development of vertebral bone structure in humans
- Assessing the outcome, quality of life and treatment satisfaction of patients with urogenital chronic pelvic pain
- Theca Formation in the Mammalian Ovary
- Systematic review of the effects of different types of infant feeding on risk of allergic and autoimmune diseases
- The LAPS Study - Long Term Health Implications of APS (Antiphospholipid Syndrome) in Women presenting with Recurrent Miscarriage.
- Maternal immunisation as a tool to protect vulnerable neonates against vaccine preventable infections in early life.
- Examination of chromosomal abnormalities in human azoospermia by novel molecular markers
- Identification and validation of DNA Methylation changes in ovarian cancer
- Pre-analytical serum handling effect on the metabolic profile and development of a standardised protocol for collection of serum and plasma for metabolomic studies.
- Investigation of the effects of environmental exposures on human breast milk composition
- Fetal development of the pelvic & shoulder girdles in humans
- Do embryos derived from eggs fertilised with testicular sperm develop differently?
- Identifying mitophagy in the immature brain
- Is mitochondrial DNA secretion by the embryo affected by embryo morphokinetics?
- Origin of placental site trophoblastic tumours. Do most originate in the placenta of female, rather than male, conceptuses?
- How should we treat children with tuberculosis? - A critical review of the literature in view of recent changes to dosing guidelines
- Assessing the outcome, quality of life and treatment satisfaction of patients with urogenital chronic pelvic pain
- Human placenta and histamine
- Investigation of Metabolic Changes after weight loss surgery
- Induction of ovulation with low-dose follicle stimulating hormone in women with PCOS
Respiratory Science

- The relationship between innate lymphoid cells and airway remodelling in paediatric severe asthma
- E-cigarette exposure of monocyte derived macrophages: are they as harmless as portrayed?
- Genes for atopy – do they modify IgG responses to indoor allergens?
- An evaluation of the utility of cardio-pulmonary exercise testing in the evaluation of unexplained breathlessness
- Electron tomography to distinguish inner dynein arm defects in Primary Ciliary Dyskinesia from secondary loss of dynein resulting from respiratory infection
- Using fluorescence to report on the mode of inhibition of Aurora-A kinase inhibitors
- Exercise testing patients with pulmonary arteriovenous malformations
- Predictive accuracy and clinical impact of Xpert MTB/RIF for diagnosis of smear-negative tuberculosis using bronchoalveolar lavage fluid
- Investigating mechanisms of lung repair following injury
- Role of T follicular helper cells in Seasonal Allergic Rhinitis
- Role of α1-antitrypsin in cystic fibrosis
- How does aberrant cell polarity promote lung tumourigenesis?
- Relationship between invasive and non invasive markers of inflammation in children with severe therapy resistant asthma (STRA)
- An evaluation of the utility of extra-thoracic hyper-responsiveness testing in chronic refractory cough
- Free haemoglobin as a modulator of inflammation in lung epithelium: Implications for the acute respiratory distress syndrome (ARDS)
- Arterial oxygen content in patients with PAVMs: A 30 year series
- The toxicity of nanomaterials at the alveolar interface critically depends on their interactions with respiratory secretions
- The Underdiagnosis of COPD in the Community using Spirometry Alone
- Diversity of Aspergillus species in BAL samples obtained from lung transplant recipients: Identification and antifungal susceptibility testing
- The role of TREM-1 in secondary bacterial pneumonia
- Mechanisms of pericyte mobilisation in allergic airway disease
- Marine products for pulmonary disease: a systematic review of clinical studies
- Genetic influence on serum KL-6 levels in patients with systemic sclerosis associated interstitial lung disease and healthy controls
Surgery and Anaesthesia

- Development of cellular models to study fatty acid oxidation in cancer
- A novel preserving strategy against ischemia-reperfusion injury in renal transplantation
- Fluorescence Confocal Endomicroscopy to Image Breast Cancer Morphology – Towards Intra-operative Assessment of Margin Status
- Fetal, neonatal and infant development of vertebral bone structure in humans
- Cannabinoid 1 receptor activation-induced up-regulation of cyclooxygenase 2 expression in cultured rat primary sensory neurons
- Do classical ballet dancers suffer stress fractures because of fatigue or insufficiency?
- The Use of Simulation to Assess the Evolution of Pigmented Skin Lesions
- Comparison of endovascular robotic versus manual techniques using video-motion analysis in live EVAR cases
- Do classical ballet dancers suffer stress fractures because of fatigue or insufficiency?
- Transcutaneous electricity in humans
- Role of MNK1/2 in platinum resistant ovarian cancer
- The Impact of feeding on patients undergoing pancreaticoduodenectomy
- Cerebral embolic protection devices to reduce cerebral injury during thoracic endovascular aortic repair
- Evaluation of occupational and patient radiation exposure during endovascular aortic aneurysm repair
- Evaluating patient assessment and communication skills in the setting of acute physiological deterioration: A simulated study to assess the impact of mental practice
- Functional outcomes with handsewn versus stapled anastomoses in the treatment of low rectal cancer with volumetric sphincter analysis
- Diagnostic utility of exhaled breath in ovarian adenocarcinoma
- Morphometric analysis to derive a reproducible classification of mandibular asymmetry.
- Emergency craniectomy in severe traumatic brain injury
- Comparison of endovascular robotic versus manual techniques using video-motion analysis in live EVAR cases
- What makes a good Patello-femoral replacement and how can we make it better?
- Gastric neuroendocrine tumors – review of tumor characteristics and management of the disease in a Centre of Excellence