Master of Research (MRes) in Biomedical Sciences and Translational Medicine

The MRes in Biomedical Sciences and Translational Medicine provides students with high level research training within the five research departments contributing to the programme. The programme is currently divided into 13 strands and students choose a strand that matches their research interests; this then becomes the over-arching area of their research projects. The strands in the MRes in Biomedical Sciences & Translational Medicine are listed below (strand descriptions are at the end of this document):

- Biology of Cancer
- Biomedical Imaging
- Biostatistics (with Health Informatics)
- Cancer Medicine
- Cellular and Molecular Physiology
- Drug Safety
- Medical Sciences
- Molecular and Clinical Gastroenterology
- Molecular and Clinical Pharmacology
- Nanomedicine
- Neuroscience
- Stem Cells, Tissues and Disease
- Women’s, Children’s and Perinatal Health

You may be interested to read the student profiles from some of our intercalating medical students (see pages 3-4).

1. Structure of the MRes in Biomedical Sciences & Translational Medicine

The twelve-month, full-time programme is structured to allow for 3 hours lectures per week whilst the rest of the time is spent in the lab or carrying out other research project related work.

MRes in Biomedical Sciences & Translational Medicine students undertake 3 research projects that comprise 10 weeks of lab work followed by 2 weeks in which to write a report. Students also present either a poster or talk at the end of every research project. During the project, all students are encouraged to suggest experiments, design experimental protocols, as well as being taught subject specific techniques and advanced knowledge in transferable skills. The research projects will include at least three different research techniques to enhance experimental training skills that need to be clearly stated at the end of each project.
The lectures relate to state-of-the-art research techniques, application of knowledge in scientific and clinical areas, and the development of personal and professional transferable skills. Important and innovative parts of the transferable skills students take part in include the following workshops “IP and Commercialisation (our own version of Dragon’s Den)”, Demonstrator Training and “Writing a PhD Studentship”, as well as taking part in debates for public understanding of science.

Further information, including the current student handbook can be found on our webpage: https://www.liverpool.ac.uk/media/livacuk/welcome/Your_Registration.pdf or by contacting itmmres@liv.ac.uk.

2. **Bursaries for the MRes in Biomedical Sciences & Translational Medicine**

For 2020 entry we expect to have 20 bursaries at the value of £2,000 each funded by the Institute. A bursary application is at the end of this document or you can request one by emailing: itmmres@liv.ac.uk. These need to be returned by **30 June 2020**.

In addition, we will offer some North West Cancer Research Fund Bursaries subject to their availability (4 were awarded in 2019). Further information will be available from the Postgraduate Office and Course Director in due course.

3. **The University of Liverpool and Institute of Translational Medicine**

We would like to invite applications for our Master of Research in Biomedical Sciences & Translational Medicine which is currently part of the Institute of Translational Medicine. The work of the Institute takes place in the laboratory and in the clinic, forming a continuous cycle of scientific discovery and clinical research that’s yielding remarkable advances in healthcare provision.

The University of Liverpool is one of the UK’s top 24 research-led universities. A member of the Russell Group of major research-intensive universities, the University of Liverpool has an enviable international reputation for innovative research. We are proud to be one of the UK’s most inclusive universities, welcoming students from a wide variety of backgrounds and from over 100 countries of the world.
### Key information

<table>
<thead>
<tr>
<th><strong>Course Level</strong></th>
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<td><strong>Duration</strong></td>
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<tr>
<td><strong>Director of Postgraduate Studies (ITM) and MRes Programme Director</strong></td>
<td>Dr Alec Simpson <a href="mailto:awms@liverpool.ac.uk">awms@liverpool.ac.uk</a></td>
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<tr>
<td><strong>Deputy Programme Director</strong></td>
<td>Dr Carrie Duckworth <a href="mailto:carried@liverpool.ac.uk">carried@liverpool.ac.uk</a></td>
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<tr>
<td><strong>Admissions Office</strong></td>
<td>ITM Postgraduate Student Team <a href="mailto:itmmres@liverpool.ac.uk">itmmres@liverpool.ac.uk</a></td>
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<td><strong>Course fees 2020/21</strong></td>
<td>Home/EU: £4,407*</td>
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<td>Overseas: £23,650*</td>
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<td>*Plus a research support fee of £3,000</td>
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3

12 March 2020
5. Student profiles from some of our intercalating medical students

Alison Maclean (MRes graduate)

I chose to intercalate in an MRes in Women’s Health for a variety of reasons. Firstly, I want to pursue a career in Obstetrics and Gynaecology, and having an extra degree puts you at an advantage when applying for training posts later in your career, as well as earning you extra points for your Foundation Programme application. Secondly, I wanted to spend a year away from the clinical side of medicine to develop new skills and experience a taste of research, which was a welcome break after studying finals. Also, I wanted to spend an extra year as a student, as I didn’t feel like I was prepared or mature enough to graduate yet.

The MRes appealed to me more than the other degrees available because it offers a structured and supportive programme, which was important to me as I had very little exposure to research previously. Also, it involves three research projects, which is more varied than the MPhil’s one long research project.

My area of research was Gynaecology, specifically endometrial cancer and endometriosis. I have presented two of my projects at national conferences, and hope to contribute towards a publication at the Liverpool Women’s Hospital over the next year.

Although there are some short term barriers, mainly that it can be an expensive year, and your friends will graduate ahead of you, the benefits greatly outweigh these in my opinion, and the decision to intercalate will continue to benefit you for years after you graduate and all the hard work is done. There are also many grants available, and I was lucky enough to receive the Jean Shanks Award which covered my tuition fees and more.

The decision to intercalate may be a straightforward one, or it may be a little more difficult, as it was for me. Either way, it is important to choose a degree that will be worth your time, and the MRes offers you the chance to develop a new set of skills relevant to academic medicine, and also develop professionally, which will benefit you in your future career.

Peter Skellorn (MRes graduate)

If you’re taking a year out from the MBChB course, paying for another year of tuition and delaying the start of your working career then it’s got to be worth your while. My main goals were to be published, develop my own research skills, and a greater understanding of my own subject area of interest, Gastroenterology and so I only considered MRes and MPhil degrees for my intercalation. These courses are better suited to achieving these goals than a BSc or an MSc. I chose the MRes degree over an MPhil, because the MRes allows you to do three different projects instead of just one.

I’m working in the Gastroenterology Department, which is the largest Gastroenterology Research Unit in the UK. I’m doing all three of my projects in John Jenkins group, focusing a panel of novel candidate biomarkers for Colorectal cancer screening. In these projects I have used the following techniques: cell culture, SiRNA gene-silencing, FACS analysis, RNA extraction, qRT-PCR, and proteomic data analysis.

The two things I enjoy the most about the MRes course, are working with and learning from a vast number of researchers and clinicians who are at the cutting edge of their own field and being able to produce and interpret completely novel results. The thing I am looking forward to most is submitting some of my own work for publication.

My career goal is to become a Colorectal Surgeon and the projects I’ve been working on fit in perfectly with this. I hope to gain publications from my projects, as well as a poster prize, which would be great for my CV, but I’ve also improved a number of relevant skills such as: scientific writing, poster design and presenting. I’ve really enjoyed the course so far and I would strongly recommend it to any medical student who is considering a career in academic medicine or has specific interest in one of the subject areas relevant to a strand on the MRes course.

Liverpool is a great place to be a student, it’s vastly cheaper than London, and there’s still plenty going on and a great night life. This is my 5th year at the University of Liverpool, what I’ve enjoyed most at the University aside from the academic opportunities, is the wide range of sports clubs and other societies that I have been able to be part of during my time here.
Elizabeth Brook (MRes graduate)

I chose to intercalate for several reasons - it’s something I had considered since fairly early on at medical school as a valuable opportunity to undertake an additional degree whilst still enjoying the perks of being a full-time student. Although not impossible to study for a Masters once working as a doctor, this is likely to be more difficult particularly when trying to balance clinical work with other lab commitments. Intercalating between 4th and 5th year also is not only a welcome break post-finals but provides the chance to do something completely new and separate from medicine - there’s going to be many many more years to do that!

The MRes in Biomedical Sciences and Translational Medicine is a structured 1-year course designed to provide foundation skills in research. Divided into a series of ‘strands’, a major focus of the course is completion of three research projects. I chose the Medical Sciences strand as this allowed me to work in separate labs in different research areas. I think in this way I gained significant experience in a wide variety of biomedical fields and developed numerous new lab skills. I chose this approach rather than directing my projects towards any particular medical specialty. On the other hand, if you are keen for O&G or Paediatrics for example, you might prefer to choose a strand more tailored towards this. There are benefits to both approaches but it is likely you will encounter many similar techniques whichever lab you’re assigned to – with cell culture, PCR and immunohistochemistry amongst some of the most common.

I very much enjoyed the MRes course here in Liverpool and I think it has set me up well for my time after medical school. I’m currently considering a career in Haematology, arguably a fairly academic specialty with a significant component of laboratory work. With the experience and confidence I developed during this past year I don’t feel overly daunted by this and at least feel I have a better idea about what I’d be letting myself in for! Labs aren’t for everyone but this MRes provides an opportunity to test out for yourself how you’d find working in this environment and whether research is for you.

Ahmed Javed (MRes graduate)

My reasons for studying the MRes degree were the ability to add a new range of skills to those I had acquired during medical school; I didn’t really see it as a year out of my medical studies as clinical research has an important part to play for any medical professional. A year away from the clinical side of things to gain a deeper understanding of what goes on “behind the blood test” was a really good way to develop skills for a future clinician. I decided to take the initiative and do an MRes so that it would increase my desirability with my future career goals.

My area of research has involved eye cancer, specifically ocular adnexal lymphomas. This is an interesting field because lymphoma is such a broad field and a lot of the knowledge about lymphomas is transferrable to those of the adnexae, but also because as Ocular adnexal lymphoma is a rare condition it means that not a lot of work has been done on them and much of the work in my lab is somewhat novel.

Currently I enjoy the ability to equip oneself with a specific technique, as one goes through this course they acquire certain skills not only in the ability to research but also to use programs such as SPSS. I look forward to the Dragons Den like business workshop as this is again a very different - yet important skill.

Overall the MRes is a course where one will be worked quite intensively, however if it’s used to its potential it really can make an individual stand out from the crowd and give a deep understanding of what research involves without having to do a PhD.

The University of Liverpool is a great place to study, not only for the reasons of academia or the diversity within the University community but also because there is a great opportunity to be involved with a variety of sports or societies that can really help and aid development of an individual at all levels.

Liverpool is generally cheaper than other major cities, and that’s very important for students on a budget, aside from that there is a great community within Liverpool and it is a city that really has benefited from the 2008 capital of culture award. It also has close links to Manchester and there a lots of scenic places to visit nearby.

More student profiles are available to view from our Findamasters.com adverts: http://www.findamasters.com/search/CourseDetails.aspx?CID=8500
6. Strand descriptions

**Biology of Cancer**
The Biology of Cancer strand offers students the possibility of undertaking research alongside internationally recognised scientists who are working to understand cancer and find new ways to detect and treat the disease.

Both fundamental and translational research is offered. Fundamental research includes activities such as dissecting the roles of specific oncogenes and tumour suppressor genes, and their signalling pathways. Translational research is more patient oriented, and includes activities such as examining patient samples for the presence of biological entities (DNA, RNA or protein biomarkers) that will enable early detection of cancer or allow predictions of which patients are likely to respond to particular treatments.

Students in this strand are allocated research projects that maximise their skills in the key research techniques of molecular biology, protein biochemistry, microscopy, and the statistical analysis of patient data sets.

Examples of research projects include fundamental and translational research of pancreatic cancer (supervisors: Costello, Greenhalf, Palmer, Ghaneh, Halloran), head and neck cancers (supervisors: Boyd, Jones, Shaw, Rubbi), blood cancers, such as leukaemias and lymphomas (supervisors: Pettitt, Slupsky, Kalakonda) and tumours affecting the eyes (supervisor: Coupland).

**Biomedical Imaging**
The Biomedical Imaging strand offers students an opportunity to work with world renowned researchers who are using biomedical imaging and sophisticated image analysis techniques to answer basic physiological and biological questions for addressing clinical problems.

Expertise is available in Magnetic Resonance Imaging (MRI) and Multi-Spectral Optoacoustic Tomography (MSOT), which is a novel imaging method utilizing pulsed-laser light and ultrasound to generate imaging data. Other imaging technologies in the Centre include Optical imaging, Ultrasound, PET, SPECT and microCT. Investigators are also developing sophisticated segmentation and registration methods for analysis of imaging data to solve major clinical and research questions. Ongoing research projects include MRI for applications in neuro-imaging, brain cancer, kidney function and liver regeneration; MSOT imaging for assessing kidney and liver function; tissue pH and electrical conductivity measurement of tissues using MRI.

Students will have an opportunity to develop skills in data acquisition, analysis and interpretation of biomedical imaging, a rapidly progressing field in the modern world of clinical research. Specific skills set may include a combination of the following: (1) developing animal models of diseases (2) image processing and analysis (3) statistical analysis of imaging data (4) basic MATLAB programming and hands on experience in image processing software like AMIRA, FSL, ImageJ and (5) critical interpretation of imaging data.

Participating faculties include investigators from the Centre for Pre-Clinical Imaging (CPI); Department of Cellular and Molecular Physiology; Neurology; Centre for Mathematical Imaging and Techniques (CMIT); Institute of Ageing and Chronic Diseases (IACD); The Walton Trust (Neurosurgery and Radiology) and the Alder Hey Children’s hospital (Radiology).
Biostatistics (with Health Informatics)
Expertise available includes the development and application of methods for evaluating biomarkers, survival data, multivariate and multilevel data personalised dosing algorithms, design and analysis of randomised controlled trials. Students will develop (1) their understanding of statistical methodology, (2) their skills in applying these techniques to real data, and (3) experience in critically interpreting the clinical and biological findings. Examples of biostatistics-based project topics are: randomised controlled trials, systematic reviews and meta-analysis, multivariate modelling, pharmacogenetics, pharmacokinetics, pharmacodynamics, personalised dosing algorithms, analysis of laboratory-based data, quality of life, statistical shape and image analysis, survival modelling, health informatics and applied health research.

Cancer Medicine
The Cancer Medicine strand provides a unique opportunity to undertake research alongside internationally recognised basic and clinical scientists who are focussed on understanding processes leading to cancer development, and utilising existing and novel approaches for optimal cancer therapy. Those joining this strand are mostly funded by the North West Cancer Research Fund (NWCRF) Doctoral Training Account although other students, especially intercalating medical students, are also welcome.

Both fundamental and translational research is offered. Fundamental research includes activities such as dissecting the role of stroma in cancer progression, and investigating DNA damage repair mechanisms following ionising radiation. These utilise key research skills in molecular biology and cellular biology techniques. Translational research includes identification and development of novel biomarkers for early detection and treatment of cancer. Students in this strand are allocated to research projects that match the NWCRF strategic research areas, such as basic mechanisms underpinning cancers of the pancreas, lung, eye and head and neck.

Examples of research projects include fundamental and applied research of the role of stromal cells, such as macrophages, in pancreatic cancer progression (supervisors: Schmid, Mielgo); prognostic biomarkers in uveal melanoma (supervisor: Coupland); targeting the DNA damage response to enhance the impact of radiotherapy in 2D/3D models of head and neck cancers (supervisor: Parsons).

Cellular and Molecular Physiology
The Cellular and Molecular Physiology strand covers a wide range of different research areas, from fundamental studies of cell biology to translational work on mechanisms of disease. Despite this diversity, the various research areas share a common aim in trying to understand complex physiological phenomena at the cellular and molecular level. Students in this strand are therefore allocated research projects that maximise their skills in key techniques to address this, such as molecular biology, protein biochemistry, calcium imaging, genetics, microscopy and electrophysiology.

Examples of general research project areas include calcium signalling (supervisors: Burdyga, Burgoyne, Cridde, Haynes, Quayle, Simpson, Tepkin, Wray), cell signalling and ubiquitination (supervisors: Clague, Coulson, Prior, Urbe), protein interactions (supervisor: Sanderson, Hammond), cancer microenvironment (supervisors: M Morgan, Varro) and neuronal function/dysfunction (supervisors: Barclay, Burgoyne, A Morgan, Sanchez-Soriano, Stagi, Swan).
**Drug Safety**

Drug Safety is an exciting branch of experimental science that combines Pharmacology and Toxicology which informs how to design safer drugs through knowledge of mechanisms of adverse drug reactions.

The MRC Centre for Drug Safety Science has longstanding expertise in chemical, molecular, cellular and clinical aspects of research in adverse drug reactions, with particular expertise in biomarkers. Training will be carried out under the remit of the MRC Centre for Drug Safety Sciences, of which there is only one in the UK. We undertake a significant amount of research in collaboration with the pharmaceutical industry.

Examples of research projects include:

- Development of novel preclinical test systems to identify toxicological potential in new drug candidates;
- Development of novel clinical genotyping screens to identify susceptible individuals and inform their therapeutic management;
- Informing the drug design process at an early stage to avoid incorporation of potentially toxic chemical motifs.

**Medical Sciences**

The Medical Sciences strand may involve up to three separate projects in different areas of medically relevant research, and so may appeal to students who do not wish to specialise in one single research area.

The projects can be drawn from any of the wide range of research areas covered by staff within the Institute of Translational Medicine (ITM). Information on research project areas within ITM can be found in the descriptions of the various other MRes strands contained in this document and from the Institute website [http://www.liv.ac.uk/translational-medicine/](http://www.liv.ac.uk/translational-medicine/). In addition, we can also run health economics projects in collaboration with the Management School or the Biostatistics department.

As with the other strands, projects will be allocated by the strand convenor (the member of staff who organises the strand) after consultation with students about their research interests. This new strand is primarily designed for intercalating medical or dental students, but is also available to non-clinical students.

**Molecular and Clinical Gastroenterology**

The Department of Gastroenterology provides excellent opportunities for laboratory and clinical research focusing on the pathogenesis of diseases of the gastrointestinal tract in humans and animals ([www.liv.ac.uk/gastroenterology](http://www.liv.ac.uk/gastroenterology)). The high quality of our research was specifically commented on in the 2008 Research Assessment Exercise and we have funding from sources including MRC, BBSRC, Wellcome Trust, NIHR and CRUK. Our focus is on “translational” research that will take advances in basic medical research out of the laboratory and into the hospital or veterinary clinic ‘from the bench to bedside’ in order to improve the health and welfare of people and animals world-wide.

Examples of research projects include: Inflammatory Bowel Disease (IBD) – role of bacterial factors, the development and assessment of novel therapies (Campbell, Rhodes, Lu); Gastrointestinal Cancers (Pritchard, Jenkins); studies of the metabolome in IBS, IBD and cancer (Probert), intestinal epithelial growth dynamics (Duckworth).

We employ the whole range of cutting-edge experimental techniques from mechanistic studies involving cell-lines, intestinal organoids and gastrointestinal tissues through to patient studies and clinical trials.
Laboratory research is based mainly in the main campus in the Henry Wellcome Laboratory of Molecular & Cellular Gastroenterology. Clinical research and trials are conducted at the NIHR Biomedical Research Centre in Microbial Diseases at the Royal Liverpool University Hospital, and at the Leahurst Veterinary Field Station within the Philip Leverhulme Equine Hospital and Small Animal Teaching Hospital.

**Molecular and Clinical Pharmacology**

Students are provided with the opportunity for acquisition of research skills and knowledge across modern pharmacological issues. This encompasses fundamental mechanistic studies, clinical analyses and mathematical modelling to understand the mechanisms that underpin pharmacokinetics and pharmacodynamics for therapy of infectious diseases, cancer, immunological and CNS disorders. Students will have a choice of research projects that will provide training in methodologies to address key questions in these areas and opportunity to test a number of hypotheses.

Examples of techniques that may be acquired include: molecular biology, cell biology, immunology, mass spectrometry, genetic analysis, in silico approaches and/or cloning/transfection. Projects take place in research labs with strong international reputations in general areas such as hypersensitivity, drug safety and personalised medicine.

**Nanomedicine**

This strand offers a wide range of research projects in the areas of nanomedicine synthesis, pharmacology and safety. Research projects will cover a variety of ambitions, from development of novel methodological tools for evaluation of nanomaterials, to implementation of pharmacological techniques to aid accelerated translation of bespoke materials towards clinical applications.

Expertise available predominantly relates to drug delivery applications and includes methods for developing nanoparticles as drug delivery vehicles, which spans solid drug nanoparticles, lipid-based materials, or polymer nanoparticles. Expertise for in vitro and in silico characterisation of nanoparticle interactions with biological systems as they relate to the efficacy and safety of nanomaterials is a local strength, which is complemented by in vivo models to confirm nanoparticle pharmacokinetics and distribution. Successful applicants will join an interdisciplinary team of researchers with expertise in pharmacology, material chemistry, pharmacokinetic modelling, and nanomaterial biocompatibility.

Students will develop (1) their understanding of the benefits and risks of nanomedicine development, (2) their skills in generating and assessing these benefits and risks, and (3) experience in critically interpreting their research findings.

Examples of nanomedicine-based projects include: a) synthesis of nanotechnology-enabled medicines for the treatment of diseases; b) pharmacological evaluation of route-dependent nanoparticle pharmacokinetics; or c) early evaluation of nanomaterial safety (e.g. interactions of drug nanoparticles with the immune system).

**Neuroscience**

The Neuroscience strand covers a wide spectrum of research interests, encompassing studies of the basic cellular and molecular properties of neurons and neuronal signalling, analysis of the neurobiological basis of health and disease, exploration of the structure and function of the human nervous system, and investigation of the characteristics and underlying mechanisms of neurological and neuropsychiatric disorders in clinically-orientated research projects.

Projects are based in laboratories across campus in multiple academic departments in the Institute of Translational Medicine and other research institutes. They can also be conducted in collaboration with brain imaging scientists at the LiMRIC facility and with clinical neuroscience researchers at the Walton
Centre NHS Foundation Trust in North Liverpool. Major areas of active research include epilepsy, demyelinating disorders, neuro-behavioural disorders, neurodegeneration and MRI-based brain imaging.

Techniques utilised within this strand are highly varied and project-specific but are typically drawn from the broad disciplines of structural and molecular biology, protein biochemistry, pharmacology, electrophysiology, microscopy, genomics and epigenetics, structural and functional MRI neuroimaging, neuropsychological assessment, and clinical disease phenotyping.

**Stem Cells, Tissues and Disease**
This strand is focussed on stem cell research and also the cellular and molecular mechanisms that underlie a variety of human diseases. The research programmes span from single cell-based studies investigating the molecular mechanisms of pathogenesis, to whole organism-based preclinical studies investigating the therapeutic potential of stem cells in disease.

Depending on their allocated research project, students in the Stem Cells, Tissues and Disease strand will receive training in various key techniques, such as stem cell and induced pluripotent cell tissue culture, embryo dissection, animal handling, immunostaining, ELISA, flow cytometry, histology and biomarker analysis, microscopy (including immunofluorescence and confocal), cloning and quantitative PCR.

Examples of research project areas include embryonic stem cell and induced pluripotent cell biology (supervisors: Goldring, Murray), mesothelial, endometrial and neural stem cell biology (supervisors: Hapangama, Wilm, Plagge), calcium signalling in disease (supervisors: Criddle, Simpson, Tepikin), pathophysiology of diabetes mellitus (supervisor: Mora), reporter gene constructs and vectors for stem cell labelling and tracking / in vivo imaging (supervisor: Plagge), Cardiovascular disease (Cross, Simpson and Wilm).

**Women’s, Children’s and Perinatal Health**
This strand covers a wide range of different research areas, from laboratory based cell biology work to clinical trials. Despite this diversity, the various research areas share a common aim in trying to understand health and the disease related to women’s, children’s and neonatal health.

Students in this strand are therefore allocated research projects that maximise their skills in key techniques to address this, such as research synthesis (meta-analysis) clinical trial management, drug development, a wide variety of advanced laboratory techniques including histopathology and immunohisto/cytochemistry, primary cell culture and culturing cell lines, molecular biology including PCR, Western blotting, qFISH, and microscopy.

Student projects take place in the Department with strong international reputations in the areas related to Obstetrics & Gynaecology and Neonatology.

Examples of research project areas include: clinical trials in women and in the newborn in areas of pre-term labour, third stage of labour, global maternal health, RCTs in to the long term follow up of post natal growth restriction, neonatal drug development (supervisors; Weeks, Alfirevic, Weindling, Cooke & Turner), uterine physiology and pre-term labour (supervisor: Wray), maternal obesity and misoprostol (supervisor; Weeks), Bioinformatics of endometrial disease (Supervisors: Hapangama, Vasieva), endometrial stem cells and endometrial biology (supervisor: Hapangama), telomere biology in endometriosis & endometrial cancer (supervisor: Hapangama).
SECTION 1  (TO BE COMPLETED BY THE STUDENT)

Student Name

Student ID No

I intend to intercalate to the following programme in 2020-21:

Level of Study (e.g. BSc / MRes / MSc / MPhil)

Programme Title

University Name

Department Name (if University of Liverpool)

Indicate how your intercalating year will be funded (fees and maintenance)

Please ensure you complete a separate form for each of the courses that you apply for.

I have approached the relevant University/Department and have been accepted by the Director of Studies of the programme (*delete as appropriate):

Yes / No *

Student Signature: ___________________________  Date: __________________________

SECTION 2

1. The Intention to Intercalate form must be returned by 4PM ON FRIDAY 21st FEBRUARY 2020. The form should be returned to Russell Smith (intercal.mbchb@liverpool.ac.uk) in the School of Medicine.

2. The following forms should then be completed as appropriate:
   • Intercalation application form for programmes at the University of Liverpool (form B) or
   • Intercalation application form for programmes outside of the University of Liverpool (form C).

The deadline for submission of the application form B or form C is 4PM ON THURSDAY 7TH MAY 2020.
INTERCALATING APPLICATION FORM FOR PROGRAMMES
AT THE UNIVERSITY OF LIVERPOOL (2020-21)

UNDERGRADUATE: If you are intercalating on an undergraduate degree, please complete sections 1 & 2 only. The completed form should then be returned to Russell Smith (intercal.mbchb@liverpool.ac.uk) the School of Medicine, no later than 4PM ON THURSDAY 8TH MAY 2020.

MASTERS: If you are taking a postgraduate course, please complete Sections 1, 2 & 3. The relevant Institute Postgraduate Office will return the form to the School of Medicine (Russell Smith intercal.mbchb@liverpool.ac.uk) by 4PM ON THURSDAY 7TH MAY 2020. Students will be sent a letter by the Institute, confirming their new programme and start date.

Please note: This form must be fully completed by the student and Department before returning to the School of Medicine.

SECTION 1 (TO BE COMPLETED BY THE STUDENT)

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Insert below the details of the programme you will follow:

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<td>Please confirm you have made arrangements to fund your Intercalation year (fees and maintenance). What is the source of your funding?</td>
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Student signature: ______________________________ Date: ______________________________

SECTION 2 (TO BE COMPLETED BY THE COURSE DIRECTOR/SUPERVISOR/HOST DEPT BEFORE IT IS SUBMITTED TO THE SCHOOL OF MEDICINE)

Complete the following details:

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<thead>
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<th>Programme Major Code (contact your Admissions Officer if you don’t know)</th>
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<td>Start Date</td>
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</table>
Title of the Students Research Project (MPhil only)

| Supervisors Names and Contributions (MPhil only) | 1st: ............................................................. (..........%) |
| 2nd: ............................................................. (..........%) |
| 3rd: ............................................................. (..........%) |
| 4th: ............................................................. (..........%) |

Will the student be charged a Research Support Fee Y/N (MPhil only) (If yes, give details of cost and for what the research support fee will be used)

Primary Supervisor
Signature (MPhil only): ____________________________ Date: __________________

Print Name: ____________________________________________

HoD/Director Signature: ____________________________ Date: __________________

Name & Position: ____________________________________________

Masters Level Study:

After section 2 is completed, the supervisor, host department or Course Director should forward the form to the relevant Institute Director for Postgraduate Research (IDPR) for approval. Once signed, by the IDPR, the form will be forwarded to Russell Smith (intercal.mbchb@liverpool.ac.uk) in the School of Medicine by 4PM ON THURSDAY 7TH MAY 2020

Ethical approval:

If your research project requires Ethical Approval, please ensure permission has been obtained prior to the start date of your course. If Ethical Approval has not been confirmed you should not commence the course of study. If this is an issue, please email Dr John Jenkins (jrj1@liverpool.ac.uk) to discuss.

SECTION 3 (TO BE COMPLETED BY THE INSTITUTE DIRECTOR FOR POSTGRADUATE RESEARCH)

Please sign to accept the student to intercalate in your Institute:

IDPR signature: ____________________________ Date: __________________

Name: ____________________________________________
# MRes in Biomedical Sciences & Translational Medicine

## STRAND CHOICES FORM

**Student Name:**

**Student ID No:**

Please indicate your top 3 strand choices in the boxes below:

<table>
<thead>
<tr>
<th>Insert strand choice’s – 1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>Strand name</th>
<th>Insert strand choice’s – 1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>Strand name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology of Cancer</td>
<td>Molecular and Clinical Gastroenterology</td>
<td>Biology of Cancer</td>
<td>Molecular and Clinical Gastroenterology</td>
</tr>
<tr>
<td>Biomedical Imaging</td>
<td>Molecular and Clinical Pharmacology</td>
<td>Biomedical Imaging</td>
<td>Molecular and Clinical Pharmacology</td>
</tr>
<tr>
<td>Biostatistics (with Health Informatics)</td>
<td>Nanomedicine</td>
<td>Biostatistics (with Health Informatics)</td>
<td>Nanomedicine</td>
</tr>
<tr>
<td>Cancer Medicine</td>
<td>Neuroscience</td>
<td>Cancer Medicine</td>
<td>Neuroscience</td>
</tr>
<tr>
<td>Cellular and Molecular Physiology</td>
<td>Stem Cells, Tissues and Disease</td>
<td>Cellular and Molecular Physiology</td>
<td>Stem Cells, Tissues and Disease</td>
</tr>
<tr>
<td>Drug Safety</td>
<td>Women’s, Children’s and Perinatal Health</td>
<td>Drug Safety</td>
<td>Women’s, Children’s and Perinatal Health</td>
</tr>
<tr>
<td>Medical Sciences</td>
<td></td>
<td>Medical Sciences</td>
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</tr>
</tbody>
</table>

Please support your strand choices with a brief summary of research areas that interest you.
**Master of Research (MRes) in Biomedical Sciences & Translational Medicine**

**Bursary Application Form 2020/21**

We are usually able to offer 10-20 bursaries which will be valued at £2,000 each. For the successful bursary applicants, the £2,000 will be used to cover part of your tuition/bench fees. A bursary application will only be considered if an application has already been submitted for this course.

<table>
<thead>
<tr>
<th>Applicant name:</th>
<th>ID Number:</th>
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<tr>
<th>Email address:</th>
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<table>
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<tr>
<th>Education record (with dates and grades achieved)</th>
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<tr>
<th>Current course being studied and predicted grades (if applicable)</th>
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</table>

As this is a partial bursary, how do you intend to pay the remainder of the fees for the course

<table>
<thead>
<tr>
<th>Supporting statement explaining why you deserve a bursary award (maximum 500 words)</th>
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</table>

**DEADLINE:** Return the form to the Institute Postgraduate Office ([itmmres@liv.ac.uk](mailto:itmmres@liv.ac.uk)) by 30 June 2020
Institute of Translational Medicine

NWCR funded bursary application call for MRes in Biomedical Sciences & Translational Medicine

Applications are invited from eligible medical students for four bursaries to support MRes in Biomedical Sciences and Translational Medicine in the academic year 2020-2021. You should have demonstrated appropriate academic achievements and commitments during your medical degree and have an interest in human cancers.

**Application Procedure**

Applications should comprise:

- A copy of your full curriculum vitae
- Academic transcript
- A personal statement indicating the reasons why you want to study MRes
- Please indicate the year of study and whether you want to apply for the additional bursary for living expenses, in which case proof of your qualification is required

*All applicants will be invited for an interview. A decision will be made no later than 01 May 2020.*

**Submitting Applications**

Applications may be submitted by e-mail to: avarro@liverpool.ac.uk

*Closing date for applications is 16 March 2020.*

**Bursary arrangements**

- £3,000 to cover research support (bench) fees
- Extra £4,327 to cover tuition fees for third year students up to £7,327 in total
- Extra £2,000 towards living expenses for students who qualify

Any enquiries to: avarro@liverpool.ac.uk