



Introduction

Welcome

Dear fetal heart enthusiasts,
welcome to the Fetal Echocardiography course.

My name is Nayana Parange and I am the course co-ordinator for this course. I am delighted that you have chosen to enrol into the course.

This course is an elective for the Masters program in the Medical Sonography. Ob Gyn ultrasound, especially fetal echo, is my area of expertise so I wrote this course and first introduced it in SP5 2009. The Course has developed and evolved since then.

Fetal echocardiography is one of the highest challenges in obstetric ultrasound, it can be quite overwhelming to grasp all the complex physiological and pathophysiological concepts in this area. I hope this course will provide you with an insight into this complex field and help you acquire all the necessary skills and knowledge to perform and interpret a fetal cardiac exam.

In support for this course, you should use this Course Outline, the Study guide and online resources, which will guide your learning through the study period. I have also provided a number of online resources on the course homepage via the e-reader. I hope you enjoy using these online resources. I will keep uploading new resources and updating as we go along.

I will be using the discussion board named 'Heart matters ' as a means of communication for general enquiries, housekeeping issues etc. I would like to know you all, so please come online and chat with other students studying this course.

There are no exams for this course, so you can enjoy the process of learning. There are a range of assessments, including ongoing compulsory quizzes to help you stay on track. The literature review writing assignment will help you come up with an article which can be tweaked for publication, so you will be honing your skills in this area too.

There are compulsory blogs as well, which is essential for passing the course. All of you come with rich, diverse clinical experience and expertise, so to maximise a collaborative learning experience, I have set up an eportfolio group for fetal echo, where you will be sharing and responding to each others' blogs. I look forward to reading and responding to your blogs, hearing your thoughts, opinions and critical reflection on some of the issues faced while performing fetal cardiac scans.

It is very important that you check your student emails and the online noticeboard everyday during the Study Period, as this is my preferred method of communication.

I work at the university full-time. I am involved in research as well as have other teaching and administrative responsibilities so I may not be always available on the phone at my desk, but if you are unable to reach me on my office line, please email me along with your telephone number or a preference for a ZOOM catch up and I will get back to you as soon as I can.

We have had a really diverse group of people studying this course over the last few years.

It has been wonderful to have a rich and interesting online interaction between novices and experts, trainees and tutor sonographers, obstetricians, sonologists, radiologists, neonatologists, cardiac sonographers as well as cardiologists who have chosen to study this course.

I am looking forward to your active involvement and contribution so we can all learn from each other's experiences, and make this semester an enjoyable one.

I also look forward to any feedback you may have to enhance the Course delivery and experience.

All the best,
Happy studying!

Nayana Parange

Academic Work Definitions

External mode includes online, distance education, industry placement or directed research. Virtual classrooms are deemed to be an external mode of delivery. External mode does not normally include a face to face component, however some courses offered in external mode may require a small component of on-campus activity, or practical sessions.

The expectations of your activity and preparation for each course will be aligned to the activity being undertaken. For example, if you are studying externally and there are virtual lectures, your preparation would be as listed under the lecture section of this guide.

You may also be supported through online facilitation, with preparation required, and other learning activities provided in your course, that will each have specific preparation requirements for you. These requirements should be set out in individual course guides.

Peer Interaction is usually included in UniSA courses in both external and internal modes of delivery and is considered a critical element of the learning process that may involve activities, projects, discussion forums, presentations, practicals, workshops.

Online facilitation

Student information

Online courses generally require students to independently read, view and/or work through all required materials, including pre-recorded presentations that have been produced and provided to facilitate this form of learning.

Independent online learning is supported by Online Facilitators who supplement online teaching resources by facilitating, monitoring and moderating online forums; answering student queries via virtual office hours or help desks, online dialogue and/or phone conversations, providing formative feedback on your work or explaining comments and marking of your prior work.

Students are expected to be familiar with all relevant course content, including materials provided and assessments, and engage appropriately with facilitators within the timeframes provided.

Course Teaching Staff

Course Coordinator:	AsPr Nayana Parange
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Staff Home Page:	people.unisa.edu.au/Nayana.Parange

* Please refer to your Course homepage for the most up to date list of course teaching staff.

Contact Details

UniSA Allied Health & Human Performance

Website: <https://www.unisa.edu.au/about-unisa/academic-units/allied-health-and-human-performance/>

Course Overview

Prerequisite(s)

Accredited Medical Sonographer or equivalent

Corequisite(s)

Corequisite Comments

The student must be engaged in ultrasound examination procedures for a minimum of 200 hours.

Course Aim

Provide accredited sonographers experienced in obstetric scanning with an opportunity to advance their knowledge of fetal heart imaging with ultrasound.

Course Objectives

On completion of this course, students should be able to:

CO1. Revise the embryology of the developing fetal heart and circulatory system.

CO2. Using a knowledge of ultrasound instrumentation, and image optimisation select optimal scan settings for a fetal echocardiography examination.

CO3. Evaluate the general scanning principles and pitfalls and construct optimal scanning techniques.

CO4. Relate a knowledge of the sonographic features underlying various structural and functional anomalies.

CO5. Demonstrate an ability to appraise sonographic appearances to recognise normal and abnormal fetal cardiac electrophysiology and fetal arrhythmias on fetal echocardiography.

CO6. Evaluate the role of recent advances in imaging techniques and technology in fetal echocardiography including its role in fetal cardiac interventional procedures.

Upon completion of this course, students will have achieved the following combination of Graduate Qualities and Course Objectives:

	Graduate Qualities being assessed through the course						
	GQ1	GQ2	GQ3	GQ4	GQ5	GQ6	GQ7
CO1	•		•	•		•	
CO2	•		•	•		•	
CO3	•	•	•	•		•	
CO4	•	•	•	•		•	
CO5	•	•	•	•		•	
CO6	•	•	•	•		•	

Graduate Qualities

A graduate of UniSA:

GQ1. operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice

GQ2. is prepared for life-long learning in pursuit of personal development and excellence in professional practice

GQ3. is an effective problem solver, capable of applying logical, critical, and creative thinking to a range of

problems

GQ4. can work both autonomously and collaboratively as a professional

GQ5. is committed to ethical action and social responsibility as a professional and citizen

GQ6. communicates effectively in professional practice and as a member of the community

GQ7. demonstrates international perspectives as a professional and as a citizen

Course Content

Embryology, anatomy, physiology of the heart including fetal circulation, and scanning planes of the fetal heart to image the normal fetal heart: four chamber, normal outflow tracts and arches, atrioventricular and semilunar valves; ultrasound appearance and Doppler haemodynamics of numerous congenital and acquired fetal cardiac anomalies; common syndromes and associated ultrasound findings in congenital heart disease; recognising fetal arrhythmia; introduction to emerging technologies such as 3D and 4D imaging.

Teaching and Learning Arrangements

External

13 weeks

Unit Value

4.5 units

Student recording of learning activities

Students must seek permission prior to recording any UniSA learning activity. See [A-56 Policy Student recording of learning activities](https://i.unisa.edu.au/siteassets/policies-and-procedures/docs/academic/a56_student-recording-of-learning-activities.pdf) (https://i.unisa.edu.au/siteassets/policies-and-procedures/docs/academic/a56_student-recording-of-learning-activities.pdf)

Breaches of this Policy contravene the principles of academic integrity, and attract the penalties provided in the [Academic Integrity Procedure](https://i.unisa.edu.au/policies-and-procedures/university-policies/) (<https://i.unisa.edu.au/policies-and-procedures/university-policies/>).

Learning Resources

Textbook(s)

You will need continual access to the following text(s) to complete this course. Where possible the Library will make the book available for student use. Please check the Library catalogue before purchasing the book(s). The Library will always seek to purchase resources that allow an unlimited number of concurrent users, however availability is dependent on license arrangements with book publishers and platforms. <http://www.library.unisa.edu.au>

Drose, J (2009). *Fetal Echocardiography* (2nd). Saunders Elsevier.

Reference(s)

A list of references will be available through the learnonline site.

learnonline course site

All course related materials are available on your learnonline course site which you will be able to access from the 'my Current Studies' section in myUniSA (<https://my.unisa.edu.au>).

Access to Previous Courses

You will have access to your previous course sites for a period of 4 years. After this time, the course sites will be archived and will be unavailable.

Note: Course readings provided via the University Library are only made available to current students and staff due to licensing and copyright restrictions. Students may download their course readings while they are enrolled in the course for their personal research purposes only.

Assessment

Academic Integrity

Academic integrity is the foundation of university life and is fundamental to the reputation of UniSA and its staff and students. Academic integrity means a commitment by all staff and students to act with honesty, trustworthiness, fairness, respect and responsibility in all academic work.

An important part of practising integrity in academic work is showing respect for other people's ideas and being honest about how they have contributed to your work. This means taking care not to represent the work of others as your own. Using another person's work without proper acknowledgement is considered Academic Misconduct, and the University takes this very seriously.

The University of South Australia expects students to demonstrate the highest standards of academic integrity so that its qualifications are earned honestly and are trusted and valued by its students and their employers. To ensure this happens, the University has policies and procedures in place to promote academic integrity and manage academic misconduct. For example, work submitted electronically by students for assessment will be examined for copied and un-referenced text using the text comparison software Turnitin <http://www.turnitin.com>.

It is an offence for any person or company to provide academic cheating services to students of Australian universities, irrespective of whether the service is provided by an Australian or overseas operator (see [Tertiary Education Quality and Standards Agency Amendment \(Prohibiting Academic Cheating Services\) Bill 2019](https://www.legislation.gov.au/Details/C2020A00078) - <https://www.legislation.gov.au/Details/C2020A00078>). "Academic cheating services" includes providing or undertaking work for students, where that work forms a substantial part of an assessment task.

More information about academic integrity and what constitutes academic misconduct can be found in the [Academic Integrity Policy and Procedure](https://i.unisa.edu.au/policies-and-procedures/university-policies/academic/ab-69) (<https://i.unisa.edu.au/policies-and-procedures/university-policies/academic/ab-69>).

To learn more on academic integrity and how to avoid academic misconduct, please refer to the Academic Integrity Module: <https://lo.unisa.edu.au/mod/book/view.php?id=252142>

Important information about all assessment

All students must adhere to the University of South Australia's [procedures about assessment](http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/): <http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/>.

Assessment Details

Details of assessment submission and return are listed under each assessment task. Assessment tasks will be returned to you within 15 working days of submission.

Cover sheets

A cover sheet is not required for assessment tasks submitted via learnonline, as the system automatically generates one.

If the Course Coordinator allows submissions in hard copy format, you will be required to attach an Assignment Cover Sheet which is available on the learnonline student help (<https://lo.unisa.edu.au/mod/book/view.php?id=1843&chapterid=567>) and in myUniSA.

Assessment Descriptions

Assessment 1

Single		30% of Course Total		Objectives being assessed:CO1, CO2, CO3, CO4, CO5, CO6			
Title	Team work	Length	Duration	Due date (Adelaide Time)	Submit via	Re-Submission	Re-Marking
Literature review	No	1500 words	-	25 Apr 2023, 11:59 PM	learnonline	No	No

Further information on re-marking and re-submission is available in the academic policy, AB-68 P4 Re-marking and Re-submission Procedure

This assignment is a case study or case series with a narrative literature review. More details regarding this assignment are available in the learnonline resources.

Assessment 2

Single (Continuous)		30% of Course Total		Objectives being assessed:CO1, CO2, CO3, CO4, CO5, CO6				
Title	Team work	Length	Duration	Sub-weighting	Due date (Adelaide Time)	Submit via	Re-Submission	Re-Marking
Quiz 1: embryology, scanning indications and techniques, cardiac malposition, ASD, VSD and AVSD	No	-	20 mins	20%	4 Apr 2023, 11:59 PM	learnonline	No	No
Quiz 2: hypoplastic left heart syndrome, hypoplastic right heart syndrome, univentricular heart, aortic stenosis, pulmonary stenosis, coarctation of aorta and Ebstein's anomaly	No	-	20 mins	20%	2 May 2023, 11:59 PM	learnonline	No	No
Quiz 3: TOF, persistent truncus arteriosus, TGA, anomalous pulmonary venous return, DORV, DOLV, congenital cardiac masses, cardiosplenic syndromes, fetal cardiomyopathies and fetal arrhythmias	No	-	20 mins	20%	23 May 2023, 11:59 PM	learnonline	No	No
Quiz 4: Matching diagnoses to explanations	No	-	20 min	20%	6 Jun 2023, 11:59 PM	learnonline	No	No
Quiz 5: Image interpretation	No	-	20 min	20%	13 Jun 2023, 11:59 PM	learnonline	No	No

Further information on re-marking and re-submission is available in the academic policy, AB-68 P4 Re-marking and Re-submission Procedure

Please note, it is necessary to attempt ALL the online quizzes to pass the Course.

These are MCQ quizzes, and are timed activities.

You will find it easier to answer these quizzes if you follow the suggested study timetable. You can complete the quizzes before the due date.

You will find more details about this assignment in the online resources.

Assessment 3

Multiple		40% of Course Total			Objectives being assessed: CO1, CO2, CO3, CO4, CO5, CO6			
Title	Team work	Length	Duration	Sub-weighting	Due date (Adelaide Time)	Submit via	Re-Submission	Re-Marking
Blog 1: Performing a fetal echo-normal fetal heart	No	-	Ongoing	50%	21 Mar 2023, 11:59 PM	learnonline	No	No
Blog 2: Performing a fetal echo - abnormal heart	No	-	Ongoing	50%	20 Jun 2023, 11:59 PM	learnonline	No	No

Further information on re-marking and re-submission is available in the academic policy, AB-68 P4 Re-marking and Re-submission Procedure

These tasks have to be completed and submitted in eportfolio.

More details about this assignment are available in the online resources.

Feedback proformas

The feedback proforma is available on your course site.

Additional assessment requirements

There are no additional assessment requirements identified for this course.

Penalties for late submission

Late submission of assessment tasks in this course will result in a penalty unless an extension has been granted or the student can provide evidence of unexpected or exceptional circumstances as defined by Section 7.8 in the Assessment Policies and Procedures Manual.

The penalty for late submissions will be:

1. a deduction of 10% of the available marks, for each day (or part thereof) that the assignment is late up to a maximum of 5 days.

Thus, for an assessment item that is one day late the maximum mark available will be 90%, and for two days late 80% etc. By way of example, if a student achieved a mark of 65% for an assignment that was submitted one day late, their adjusted mark would be 65% of a total available mark of 90%, so the mark would be adjusted to 58.5%.

2. assignments which are more than 5 days late may not be assessed and will be assigned a zero grade inclusive of non-graded pass work. Whether or not an assignment that is more than 5 days late will be assessed will be at the discretion of the Course Coordinator.

Rationale for Late submission of assessment tasks policy

If unexpected or exceptional circumstances (as defined by Section 7.8 in the Assessment Policies and Procedures Manual) occur that result in late submission, or if an extension has been granted for an assessment item, there will be no penalty.

However, where no extension has been granted, and there were no unexpected or exceptional circumstances that resulted in late submission a penalty will be applied. This is to prevent students from seeking to obtain an unfair advantage, compared with their peers, by having more time to complete an assessment item.

It was considered that if a student were to work on an assessment item for one day they might be able to improve their mark by 10%, so a 10% penalty has been applied to offset any such advantage that might be gained.

The 10% deduction will be from the available mark rather than the achieved mark to ensure equity between students. By way of example:

1) If a student achieved a mark of 77 (Distinction), but the assessment item was submitted two days late, their grade becomes 77% of 80 = 61.6 which is a true 20% reduction.

If the 20% deduction were applied to the achieved mark this would be $77\% - 20\% = 57\%$, which would actually represent a 26% reduction of their achieved grade.

2) If a student achieves a mark of 54 (P2) and is 2 days late in submitting the assessment item, their grade becomes 54% of 80 = 43.2 which is a true 20% reduction. If the 20% deduction were applied to the achieved mark this would be $54\% - 20\% = 34\%$ which represents an actual 37% reduction of their achieved grade. Thus, if the deduction were applied to the achieved mark both students would experience a different real deduction depending on the actual mark they achieved. Thus, in the interest of student equity the deduction will be taken from the available mark.

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Long story short: Please apply for extensions before the deadline!

Exam Arrangements

This course does not have an exam

Deferred Assessment or Examination

Deferred assessment or examination is not available for this course. APPM 7.6.5

Supplementary Assessment

Supplementary assessment or examination offers students an opportunity to gain a supplementary pass (SP) and is available to all students under specific conditions unless supplementary assessment or examination has not been approved for the course.

Specific conditions and further information is available in the [Variations to Assessment Procedure](http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/). <http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/>

Special Consideration

Special consideration is not available for this course. APPM 7.3.2

Variations to assessment tasks

Details for which variation may be considered are discussed in the [Variations to Assessment Procedure](http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/) (<http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/>). Variation to assessment in unexpected or exceptional circumstances should be discussed with your course coordinator as soon as possible.

More information about variation to assessment is available in the [Variations to Assessment Procedure](http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/) (<http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/>).

Students with disabilities or medical conditions please refer to **Students with disabilities or medical conditions**.

Students with disabilities or medical conditions

Students with disabilities or medical conditions or students who are carers of a person with a disability may be entitled to a variation or modification to standard assessment arrangements. See the [Variations to Assessment Procedure](http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/) at: <http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/> and Policy C7 [Students with Disability](https://i.unisa.edu.au/policies-and-procedures/university-policies/corporate/c-7/) at: <https://i.unisa.edu.au/policies-and-procedures/university-policies/corporate/c-7/>

Students who require variations or modifications to standard assessment arrangements must first register for an Access Plan with the UniSA Access & Inclusion Service. It is important to contact the Access & Inclusion service early to ensure that appropriate support can be implemented or arranged in a timely manner.

Students who wish to apply for an Access Plan must book an appointment with a UniSA Access & Inclusion Advisor by contacting Campus Central or via the Online Booking System in the Student Portal. For more information about Access Plans please visit: <https://i.unisa.edu.au/students/student-support-services/access-inclusion/>

Once an Access Plan has been approved, students must advise their Course Coordinator as early as possible to ensure that appropriate supports can be implemented or arranged in a timely manner.

Students are advised there are also strict deadlines to finalise Access Plan arrangements prior to examinations. Further information is available at: http://i.unisa.edu.au/campus-central/Exams_R/Before-the-Exam/Alternative-exam-arrangements/

Action from previous evaluations

You will be asked to complete an on-line evaluation form towards the end of the semester. In order to keep our courses at a high standard, we rely on feedback from you. Please take a little time to complete this evaluation form which will be available on the course home page.

In the past, feedback from evaluations has enabled us to improve the course delivery and content and has also let us know what the students have liked about a course and would like to see it continue.

Unplanned learnonline outages

The alteration to assessment due dates and communication strategy is designed to minimise the impact of major unplanned learnonline system service outages on students and staff. They should only be considered when an unplanned outage occurs within 3 days of an assessment activity.

Outage Duration	Alteration to due date
Less than 1 hour	Nil impact
Between 1 and 4 hours	consider extension
Between 4 and 24 hours	24 hour extension
Longer than 24 hours	48 hour extension

Any changes to assessment activity will be communicated to you from your Course Coordinator via the Learnonline site discussion board.

Course Calendar

Study Period 2 - 2023

	Weeks	Topic	Assessment Details (Adelaide Time)	Public Holidays
	13 - 19 February	Pre-teaching		
	20 - 26 February	Pre-teaching		
1	27 February - 5 March	Module 1: Fetal cardiovascular embryology and physiology		
2	06 - 12 March	Module 2: Fetal echo-technical aspects		
3	13 - 19 March	Module 3: Fetal echo scanning protocol		Adelaide Cup Day 13 Mar 2023
4	20 - 26 March	Module 4: Structural abnormalities of the fetal heart	Blog 1: Performing a fetal echo-normal fetal heart due 21 Mar 2023, 11:59 PM	
5	27 March - 2 April	Module 4: Structural abnormalities of the fetal heart		
6	03 - 9 April	Module 4: Structural abnormalities of the fetal heart	Quiz 1: embryology, scanning indications and techniques, cardiac malposition, ASD, VSD and AVSD due 04 Apr 2023, 11:59 PM	Good Friday 07 Apr 2023
	10 - 16 April	Mid-break		Easter Monday 10 Apr 2023
	17 - 23 April	Mid-break		
7	24 - 30 April	Module 5: Functional abnormalities of the fetal heart	Literature review due 25 Apr 2023, 11:59 PM	Anzac Day 25 Apr 2023
8	01 - 7 May	Module 5: Functional abnormalities of the fetal heart	Quiz 2: hypoplastic left heart syndrome, hypoplastic right heart syndrome, univentricular heart, aortic stenosis, pulmonary stenosis, coarctation of aorta and Ebstein's anomaly due 02 May 2023, 11:59 PM	
9	08 - 14 May	Module 5: Functional abnormalities of the fetal heart		
10	15 - 21 May	Module 6: Recent advances in fetal cardiac imaging		
11	22 - 28 May	Module 7: Prenatal intervention in fetal cardiac disease	Quiz 3: TOF, persistent truncus arteriosus, TGA, anomalous pulmonary venous return, DORV, DOLV, congenital cardiac masses, cardiosplenic syndromes, fetal cardiomyopathies and fetal arrhythmias due 23 May 2023, 11:59 PM	

12	29 May - 4 June	Module 8: Moral, legal, ethical considerations of ultrasound	
13	05 - 11 June	Quiz 4: Matching diagnoses to explanations due 06 Jun 2023, 11:59 PM	
14	12 - 18 June	Quiz 5: Image interpretation due 13 Jun 2023, 11:59 PM	Queens Birthday 12 Jun 2023
15	19 - 25 June	Blog 2: Performing a fetal echo - abnormal heart due 20 Jun 2023, 11:59 PM	
16	26 June - 2 July		