



# LINCOLN UNIVERSITY

## DI 280 B – Practicum/Externship II

### Summer 2012 Course Syllabus

**Semester:** Summer 2012

**Course number:** DI 280 B

**Course Title:** Practicum/Externship II

**Units:** 3 units

**Instructor:** Sonographer / Physician, upon of the location of the Ultrasound labs.

#### **PREREQUISITES:**

Permission of the externship coordinator and the program director.

- Ultrasound Abdominal And OB/GYN Concentrations: DI 145; DI 170; DI 165
- Echocardiography Concentration: DI 165; DI 185

#### **COURSE DESCRIPTION:**

Students will get clinical experience in Diagnostic Imaging covering a wide variety of technical procedures. (3 units)

#### **LEARNING OBJECTIVES:**

Upon satisfactory completion of this course, the student will be able to:

- Conduct themselves in a courteous manner while in the medical office/hospital and clinical environment;
- Handling stressful situations relating to technical and ultrasound procedural standards and patient care situations;
- Communicating verbally in an effective manner in order direct patients during ultrasound examinations; and reading and interpreting patient charts and requisition for imaging examination;
- Identify and describe ultrasound terminology in an effective manner;
- Have the ability to perform ultrasound examinations at competent levels by the end of the clinical training;
- Have to demonstrate knowledge of current scanning techniques in the field of medical sonography and ultrasound technique manipulation;
- Manipulate the technical controls on the equipment used in the ultrasound department to produce an optimum image for diagnostic purposes;
- Ability to produce images of anatomic structures outlined by the clinical objectives provided by Sonographer/Physician during ultrasound externship;
- Record and process for display the images for a diagnostic medical ultrasound examinations;
- Demonstrate the ability to apply knowledge cross-sectional anatomy relative to diagnostic ultrasound;

- Identify normal and pathological condition on sonograms;
- Describe the principals and applications of Doppler ultrasound;
- Demonstrate effective team work in the clinical setting;
- Solve basic imaging challenges as they pertain to the conduct of clinical examinations.

**COURSE CONTENT:**

Major topics to be covered by Ultrasound concentrations:

- Ultrasound Abdominal And OB/GYN Concentrations:
  - o Abdominal Ultrasound
  - o Obstetrics & Gynecology
  - o Vascular Ultrasound
- Echocardiography Concentration:
  - o Echocardiography
  - o Vascular Ultrasound

**INSTRUCTIONAL METHODS:**

***Externship practicing of the Ultrasound will be based on learning:***

1. Professional qualities;
2. Conduct and behavior;
3. Shadowing / participating by scanning with Ultrasound Supervisor anyway from 1 to 8 hours day;
4. Introduction in Clinical requirement of Sonographer;
5. Complete introduction: policies and procedures of facility;
6. Pre- or back scanning whenever possible under Instructor; Introduction “Scan book “ (entering appropriate data into scan book);
7. Explain clinical experience in a group discussion Ultrasound protocols.

**REQUIREMENTS**

***EXTERNSHIP INSTRUCTIONS FOR DIAGNOSTIC IMAGING STUDENTS***

**Please bring the following with you to the externship site:**

- 1) Resume
- 2) Student ID card
- 3) Practical course attendance sheet
  - o Please be on-time and wear scrubs
  - o Cell phone use is not permitted during the externship hours
  - o Do not interfere with your instructor's work
  - o Complete 135 hours if you registered for one externship or 270 hours if you signed up for two

**Upon the externship completion, please submit the following to Admission Officer:**

- 1) Resume
- 2) Recommendation letter from your externship instructor
- 3) Signed by the instructor practical course attendance sheets

- 4) Essay #1 – describe externship experience, techniques learned and overall experience
- 5) Essay #2 – describe career objectives and future goals

**EXTERNSHIP CONTRACT**

**General conditions**

It is the policy of Prestige Medical Academy (PRESTIGE MEDICAL ACADEMY) to place students who have completed classroom and laboratory training in externship learning environment. The externship sites will be selected based on systematic, documented evaluation. The experience will include a contract for practical learning, demonstration of identified competencies, an on-site mentor periodic visits by PRESTIGE MEDICAL ACADEMY staff, and mutual evaluation by all participants in the externship (student, Extern site, and PRESTIGE MEDICAL ACADEMY).

**General conditions**

- To commit to the externship process and follow its requirements;
- To conduct my behavior in a manner consistent with effective and productive
- Workplace activities;
- To treat the externship site staff with personal and professional respect;
- To respond to directions efficiently;
- To ask question of externship site staff in order to clarify issues which may arise, and
- To enhance the classroom and laboratory training received at PRESTIGE MEDICAL ACADEMY.

**GRADING**

Practicum/Externship of work experience evaluation:

<b>Grading</b>	<b>%</b>
Attendance	10%
Personal appearance	10%
Quality of work	10%
Motivation attitude	10%
Interpersonal skills	10%
Communicational skills	10%
Writing preliminary report	20%
Performing ultrasound protocols	20%
<b>Total</b>	<b>100%</b>

<b>A</b>	Excellent	100-90%
<b>B</b>	Good	89- 80%
<b>C</b>	Average	79-70
<b>D</b>	Poor	69-60
<b>F</b>	Fail	59% and below

## COURSE OUTLINES BY ULTRASOUND CONCENTRATIONS

### ABDOMINAL ULTRASOUND

- **Liver (anatomy and echo structures):** right and left lobes; segments, dome of the Liver & diaphragm; right Lobe & right Kidney (at the level of the sinus); blood vessels (HV, HA, PV), Aorta, IVC;
- **Gallbladder (GB) (anatomy and echo structures ):** cystic duct of GB & portal vein and cephalic artery cystic duct; common bile duct & pancreas;
- **Pancreas (anatomy and echo structures ):** head, body, tail & confluence SMV & splenic vein, Superior Mesenteric artery; Wirsung's duct; stomach, splenic vein & superior mesenteric vein, celiac trunk; Aorta; IVC;
- **Kidneys (anatomy and echo structures):** right and left kidneys (sinus, medulla, cortex, pyramids); Adrenal Gland; Renal blood vessels;
- **Urinary bladder (anatomy and echo structures):** urinary bladder (distended), bladder wall (epithelial layer visualized), Urinary Jet; Blood vessels, artery, pelvis;
- **Male patients:** transabdominal examination prostate gland with full bladder and after avoid; in two dimensional and volume measurements;
- **Spleen (anatomy and echo structures):** spleen; splenic v.& a.;
- **The breast examination;**
- **Ultrasound Examination of the Lymph nodes;**
- **Ultrasound Examination of the GI tract.**

### OBSTETRICS & GYNECOLOGY ULTRASOUND

#### GYNECOLOGY

- Assess the cervix; evaluate the myometrial texture; assess and record uterine position; evaluate the contour of the uterus, assess the texture of the endometrium; assess the posterior and anterior cul-de-sac, both adnexa;

#### OBSTETRICS, 1st

- Number of the pregnancy; look for the double decidual sac sign, embryonic size: CRL; fetal position: vertex, transverse, breech; evaluate gestational sac (GS); the yolk sac

#### OBSTETRICS, 2nd & 3rd Trimester

- **HEAD :** assess the shape of the fetal head at the level of the BPD, HC and OFD, the cavum septi pellucidi, the choroid plexus, the lateral and third ventricles, Cerebellum, Cisterna magna, the thalami, nuchal fold;
- **FACE:** the facial profile (nasal bone; chin; lips; forehead); fetal orbits, lens of the eye; ears, tongue, palate; fetal teeth);
- **THORAX:** assess the fetal neck: shoulder-head space; evaluate the texture of the fetal lungs, the size of the fetal thorax, cardiac size in the thorax;
- **HEART:** assess the cardiac axis, document the fetal diaphragm, the aortic arch w/bifurcation; four chamber heart, intraventricular septa, interatrial septa, tricuspid valve, mitral valve, right vent. Outflow track W/Doppler, left vent. Outflow track W/Doppler, evaluate three blood vessels, IVC;

- **ADBOMEN:** abdominal circumference/AC, evaluation the fetal liver, gall bladder, spleen, stomach, bowel and intestine, document the insertion of the umbilical cord in the placenta;
- **URO-GENITAL:** kidneys, evaluate the renal pelvis, document the fetal adrenal glands, examine the fetal genitalia/male/female; urine bladder +arteries (Color/Power Doppler);
- **SKELETON:** scalp, clavicle, scapula, ribs, humerus/HL, ulnar & radial os, the fetal hands/fingers/count! The fetal ankles and feet/count! Femur/FL, tibia & fibula; spine: neck; thorax; lumbar; sacral area with iliac bones;
- **PLACENTA:** position: anterior/posterior/lateral/fundal, thickness, placenta edges; look for multiple gestations;
- **AMNIOTIC FLUID:** amniotic membrane, amniotic "pockets"/ 1-2-3-4;
- **UMBILICAL CORD:** insertion Umbilicus to placenta and Umbilicus to abdomen; Umbilical cord transverse/three vessel cord/Color Doppler.

## VASCULAR ULTRASOUND

- **Carotid arteries protocol:** CCA, ECAA, ICA (prox., med., dist), bulb, vertebral a., innominate a., subclavian a.;
- **Upper Extremities arteries protocol:** innominate a., subclavian artery (prox., med., dist), axillar a., brachial a.; ulnar & radial aa. Bifurcation of the ulnar & radial aa.;
- **Lower Extremities Arteries Protocol:** aorta, common iliac artery, external & internal Iliac arteries; femoral artery; superficial femoral artery; deep femoral artery; popliteal artery; anterior tibial artery; tibioperoneal trunk, posterior tibial artery; dorsalis pedis;
- **Upper Extremities Veins protocol:** innominate veins; subclavian vein; axillar vein, brachial vein; right radial & ulnar v., basilic & cephalic veins;
- **Lower Extremities Veins protocol:** common femoral v.; profunda femoris & femoral veins; saphenofemoral junction; femoral vein, popliteal v.;
- **Calf veins protocol:** bifurcation of the Popliteal vein, Anterior Tibial vein & Tibioperoneal trunk; Bifurcation of the Tibioperoneal trunk to Posterior Tibial v. & Perineal v.; greater saphenous & lesser saphenous veins;
- **Mesenteric arteries Duplex Protocol:** celiac trunk, superior mesenteric a., inferior mesenteric a., splenic a. (prox. & dist.), aorta (prox., mid., dist.) & Bifurcation;
- **Portal System Duplex Protocol:** portal v., hepatic veins, hepatic a. splenic v. aorta, IVC;
- **Ankle-Brachial test.**

## ECHOCARDIOGRAPHY

- Complete a full echo protocol in less than one hour
- Find views: PLAX, PSAX, Apical 4, Apical 2, Apical 3 and Apical 5 and subcostal
- Select the proper transducer for the examination to be performed
- Utilize correct anatomical landmarks and scanning references when performing and labeling a study
- Demonstrate the area of interest by utilizing correct scanning planes and paths
- Adjust gain controls for optimum display
- Demonstrate professionalism and ethical behavior in a clinical setting
- Perform the examination using the correct scan planes and scan paths. Identify pathological conditions commonly demonstrated on this type of study

- Calculate Atrium Volume
- Calculate 2D and M-mode measurements
- Calculate Ejection Fraction
- Know how to properly evaluate regurgitation of all severities
- Identify common cardiac arrhythmias
- Set up patient for Stress Echo
- Performer Stress Echo with the proper view
- Identify Wall Motion Abnormalities
- Perform hybrid views such as PSAX from Subcostal to gain additional information in TDS cases
- Perform right hand scanning

The syllabus updated 5/30/2012

**Note:** Instructor may change this syllabus and course schedule at any time according to my judgment as to what is best for the class. Any changes will be declared ahead of time in class.