Bergen Community College
Division of Health Professions
Paramedic Science Program
Fall 2014

PAR 102-001	**Paramedic Patient Care Techniques I**
Meeting Times	Monday 8:00a - 12:00p
Location:	Meadowlands Campus P111
Instructor:	Professor McCarthy
Office Location:	P111
Phone:	201-301-1592
Office Hours:	Tuesday and Wednesday 9:30 – 11:30 and by appointment
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Course Description
This course provides students with the patient assessment and treatment techniques related to excellent pre-hospital emergency medical care. Students will explore the human body systems and learn the systematic ways to approach life-threatening ailments. Lecture [4.00].

Prerequisite[s]: BIO-209, MAT Elective, PSY-201, SOC-101, [WRT-201 or WRT-202].
Corequisite[s]: PAR-101, PAR-103, PAR-104.

Paramedic Program Core Competencies:

A. Ethics and EMS Structure

A1. Exhibit a professional code of conduct with personal and professional integrity.
A1. Provide compassionate care to all populations while respecting cultural differences.
A3. Comply with all state and federal regulation/laws for an entry-level paramedic.

B. Patient Assessment and Skills

B1. Utilize a systematic assessment to determine appropriate modalities for medical and trauma patients of all ages while prioritizing interventions needed to improve patient outcomes.
B2. Demonstrate skill proficiency in all entry-level psychomotor skills, utilizing them when clinically appropriate and at the correct time to improve patient outcomes.
B3. Function as a member of the paramedic team by using effective communication and proper behavior that promotes customer service and efficient care.

C. Safety and Personal Wellness

C1. Correctly identifies potential hazards to promote a safe environment for self, co-workers, patients and bystanders.
C2. Uses critical thinking skills to properly manage and diffuse stressful environments.
C3. Identifies personal stress and utilizes stress management techniques to ensure physical and emotional health.

Student Learning Objectives:
As a result of meeting the requirements in this course, students will be able to:

Therapeutic Communications
Integrate comprehensive knowledge of EMS systems, safety/well-being of the paramedic, and medical/legal and ethical issues, which are intended to improve the health of EMS personnel, patients, and the community.

History Taking Techniques
Integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression. This includes developing a list of differential diagnoses through clinical reasoning to modify the assessment and formulate a treatment plan.

Anatomy and Physiology/Human Body Function and Structure
Pathophysiology
Integrate a complex depth and comprehensive breadth of knowledge of the anatomy and physiology of all human systems.

Pathophysiology
Integrate comprehensive knowledge of pathophysiology of major human systems.

Pharmacology
Integrate comprehensive knowledge of pharmacology to formulate a treatment plan intended to mitigate emergencies and improve the overall health of the patient.

Patient Exam and Differential Diagnosis
Integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression. This includes developing a list of differential diagnoses through clinical reasoning to modify the assessment and formulate a treatment plan.

Airway Management
Integrate complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.

Venous Access and Medication Administration
Integrate comprehensive knowledge of pharmacology to formulate a treatment plan intended to mitigate emergencies and improve the overall health of the patient.

Vital Signs and Monitoring Devices:
Integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression. This includes developing a list of differential diagnoses through clinical reasoning to modify the assessment and formulate a treatment plan.

Cardiology
Integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression and implement a comprehensive treatment/disposition plan for a patient with a medical complaint.

Trauma Overview
Integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression to implement a comprehensive treatment/disposition plan for an acutely injured patient.

Trauma Mechanism of Injury
Integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression to implement a comprehensive treatment/disposition plan for an acutely injured patient.

Instructional Resources
Available in the library and computer labs
Annals of Emergency Medicine
Journal of Emergency Medical Services (JEMS)
Journal of Accident and Emergency Medicine
New England Journal of Medicine
Pre-Hospital Emergency Care Journal

Means of Assessment
In accordance with accreditation standards, students will be provided with ample feedback to allow them the ability to improve performance in cognitive, psychomotor and affective domains of learning.

Quizzes (3)	25%
Assigned Reading Quizzes (10)	10%
Tests (2)	25%
Reflective Writing	10%
Comprehensive Final Written Exam (1)	30%

Moodle Structure:
The delivery platform for this course is a hybrid format utilizing a Moodle program. Students must fully participate in both online and on campus components of the course to successfully complete the course. The Moodle structure will provide opportunities for discussion boards, email communication, class announcements, online patient cases, and completion of tests and quizzes.

Course Menu in Moodle:

- Online Syllabus
- Course Announcements
- Forums
- Assignments
- Email
- My grades

Recommended Practice

To effectively manage this course for successful completion, you should do the following:

- Read and follow the course syllabus by adhering to the assigned dates of completion
- Read the messages under "Course Announcements"
- Follow the course calendar in Moodle
- Timely complete and submit all assignments – late assignments will not be accepted!
- Use the email communication platform to communicate with other students and the instructor.
- Actively participate in class and in online discussions

Course Content

This course will offer students the ability to gain cognitive knowledge related to patient care principles. The majority of the class will require students to work individually. Occasional group assignments may be utilized. Students will obtain clinical skill knowledge and competency prior to entering a clinical rotation.

Special Features of the Course

Pass Rate:

The Paramedic Department pass rate is an 80%. Students are required to obtain a final average of an 80% in each core curriculum course. At the end of the semester, any student not achieving an 80% will be unable to continue in the program.

Final Exam Minimum Score:

In addition to the program pass rate, students are required to obtain a minimum grade of 77% on all final exams. Any student not obtaining a 77% on the final exam will be unable to continue in the program.

Squad Assignments

Students will be assigned to squads of no more than 6 students. The purpose of the squad is to promote teamwork, provide peer support and offer organization structure to the course. Students will take turns being the squad leader. The structure of squads will help instill comfort for the students prior to them being required to function in a clinical affiliate paramedic unit where teamwork and communication is paramount.

Course Texts

Required Text:
American Heart Association. ***Advanced Cardiovascular Life Support Handbook***, April 2011, American Heart Association Incorporated (ISBN – 978-1-6166-9000-7)
Jones Bartlett ***Premier Bundle Package 2.0*** (ISBN: 9781284038316)
Jones Bartlett ***Bergen Medic Package*** (ISBN 9781284059342)

Optional Text:
Walls, Ron. Manual of Emergency Airway Management, 4th Edition, 2012, Lippincott, Williams and Wilkins. (ISBN 9781451144918)

Research, Writing and Examination Requirements
Students will be required to develop patient case studies that effectively depict a common medical emergency. Requirements will include appropriate description of signs, symptoms, patient presentation, pertinent medical history, medications and/or recent surgeries. Student will present their case to group. An affective behavior assessment will be included in the patient case study grade.

Grading Scale

A	93-100
B+	89-92
B	85-88
C+	82-84
C	80-81
F	Below 80
N	Incomplete (course requirements not fulfilled)

Academic Conduct
The paramedic program faculty adheres to the policy statement governing academic conduct as outlined in the Bergen Community College catalog.

- Faculty may not post exam grades publicly due to privacy laws.
- Scholastic dishonesty including but not limited to plagiarism, cheating, and collusion will not be tolerated. Any student who has demonstrated any of these behaviors will be disciplined according to the Policy and Procedure Manual of the program.

Attendance Policy
Please refer to the Paramedic Policy Manual for exact absence policy information.

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) requires that students meet a minimum number of didactic/lab, clinical and field internship hours. Therefore students are expected to attend all class sessions.

No make-up quizzes, tests or exams will be given. Any student who is absent for a quiz, test, or exam will receive a grade of "0".

Students will be allowed one excused absence per semester for all four PAR courses. An absence is considered excused when a student notifies the professor prior to the start of class that they will be absent. Any additional absences will negatively affect the student's grade. For each unexcused absence the final grade will reduce by 1 point. For each excused absence the final grade will reduce by 0.5 point.

Tardiness will not be tolerated. In accordance with New Jersey state regulation, an attendance sheet will be available at the beginning of the class. If a student is tardy 3 times it will be calculated as an unexcused absence.

Other College, School and/or Departmental Policy Statements
The Paramedic Program is accredited by two agencies, The Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the New Jersey Department of Health and Human Service – Office of Emergency Medical Services.

The Bergen Community College Paramedic Science Program has been issued a Letter of Review by the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP). This letter is NOT a CAAHEP accreditation status, it is a status signifying that a program seeking initial accreditation has demonstrated sufficient compliance with the accreditation Standards through the Letter of Review Self Study Report (LSSR) and other documentation. Letter of Review is recognized by the National Registry of Emergency Medical Technicians (NREMT) for eligibility to take the NREMT's Paramedic credentialing examination(s). However, it is NOT a guarantee of eventual accreditation.

To contact CoAEMSP:
8301 Lakeview Parkway Suite 111-312
Rowlett, TX 75088
214-703-8445
FAX 214-703-8992
www.coaemsp.org

The Paramedic Department Policy and Procedure Manual has been reviewed at orientation. The purpose of the manual is to clearly outline the role and responsibility of each stakeholder in the education process; the student, the patient, the faculty, the clinical affiliate and the college. Students and faculty are expected to adhere to the policies of the program.

Student and Faculty Services
Students are encouraged to seek assistance from peers and/or faculty members whenever they are having difficulties with the program curriculum. The Paramedic Science Program is structured to ensure the needs of the paramedic student will be met. There will be open skill labs and simulation sessions available to allow students to access adjunct faculty for support with any learning difficulties. Peer tutors will be utilized to facilitate further success in the program.

Americans with Disabilities Act
Students who require accommodations in accordance with Americans with Disabilities Act (ADA) can request these services form the Office of Specialized Services. To learn more about the services offered at Bergen Community College, visit them at www.bergen.edu/oss.

Course calendar:

Week	Topic	Assignment
1	Course Overview: BLS assessment, History Taking, and BLS Skills, Therapeutic Communication	*Emergency Care in the Streets* Chapter 5
2	Anatomy & Physiology Review	*Emergency Care in the Streets* Chapter 7
3	Respiratory Assessment and Devices	*Emergency Care in the Streets* Chapter 15 and 16
4	Respiratory Pathophysiology and Pharmacology Quiz #1	*Emergency Care in the Streets* Chapter 10, 15 and 16
5	Medication Administration	*Emergency Care in the Streets* Chapter 11
6	Vital Signs and Monitoring Devices Test #1	*Emergency Care in the Streets* Chapter 11
7	Cardiac Pathophysiology	*Emergency Care in the Streets* Chapter 17
8	Arrhythmias: Junction / Ventricular / Paced Quiz #2	*Emergency Care in the Streets* Chapter 17
9	Cardiac Pharmacology Fast Rhythms	*Emergency Care in the Streets* Chapter 17
10	12 Lead	*Emergency Care in the Streets* Chapter 17
11	Acute Coronary Syndrome Differentiated Cardiac Assessment Test #2	*Emergency Care in the Streets* Chapter 17
12	Intro to Trauma, Kinematics, Hemorrhage and Shock Quiz #3	*Emergency Care in the Streets* Chapter 29 - 31
13	Blunt Penetrating, Thoracic and Abdominal	*Emergency Care in the Streets* Chapter 33-36

14	Trauma Center Tour and Aeromedical Tour	
15	Final Exam	

Syllabus Subject to Change

Unit Objectives:
As a result of meeting the requirements in this course, students will be able to:
Therapeutic Communications

1. Identify the importance of communications when providing EMS.
2. Identify the role of verbal, written, and electronic communications in the provision of EMS.
3. Describe the phases of communications necessary to complete a typical EMS event.
4. Identify the importance of proper terminology when communicating during an EMS event.
5. Identify the importance of proper verbal communications during an EMS event.
6. List factors that impede effective verbal communications.
7. List factors which enhance verbal communications.
8. Identify the importance of proper written communications during an EMS event.
9. List factors which impede effective written communications.
10. List factors which enhance written communications.
11. Recognize the legal status of written communications related to an EMS event.
12. State the importance of data collection during an EMS event.
13. Recognize the legal status of patient medical information exchanged electronically.
14. Describe the purpose of verbal communication of patient information to the hospital.
15. Describe information that should be included in patient assessment information verbally reported to medical direction.
16. Diagram a basic model of communications.
17. Organize a list of patient assessment information in the correct order for electronic transmission to medical direction according to the format used locally.

History Taking Techniques

1. Describe the techniques of history taking.
2. Describe the importance of the medical history.
3. Discuss the importance of using open ended questions.
4. Describe the structure and purpose of a health history.
5. Describe how to obtain a comprehensive health history.
6. List the components of a comprehensive history of an adult patient.
7. Differentiate a stable patient versus an unstable patient.

Pathophysiology

1. Describe normal cell function
2. Outline electrolyte balance and imbalance
3. Describe the treatment of patients with electrolyte imbalance
4. Describe the mechanism of acid base balance and appropriate treatment there of
5. Outline the effects of cellular injury on local and systemic body functions
6. Outline the causes and compensatory mechanisms associated with hypoperfusion

Pharmacology

1. List and describe the actions and uses for pharmaceutical agents
2. Review the mathematical equations used for drug calculation

3. Outline autonomic nervous system function that can be altered by drug therapy
4. Discuss factors that influence and affect drug absorption, distribution, and elimination
5. Explain the meaning of drug terms that are necessary to safely interpret information in drug reference

Patient Exam and Differential Diagnosis

1. Understand Assessment approach and technique
2. Define a complete Physical Examination
3. Outline the elements of effective therapeutic communication
4. Outline the elements of an effective patient interview
5. Summarize strategies to gather appropriate patient information
6. Summarize strategies to enhance communication in special situations
7. Describe the purpose of effective history taking technique
8. List components of the patient history
9. Outline the critical steps in initial patient assessment
10. Discuss interventions for life-threatening conditions
11. Identify the components of a focused history and physical exam
12. Describe on going assessment
13. Distinguish priorities in the care of medical versus trauma patients

Airway Management

1. Explain the mechanism of ventilation and perfusion
2. Describe pulmonary circulation
3. Explain the transport of gases through the body
4. Describe the voluntary, chemical, and nervous regulation of respiration
5. Discuss effective assessment techniques of airway obstruction
6. Discuss effective management techniques for airway obstruction
7. Describe techniques for delivery of supplemental oxygen
8. Discuss methods of patient ventilation
9. Describe the use of manual airway maneuvers
10. Describe assessment techniques and devises used to ensure adequate oxygenation
11. Identify alterations in oxygenation and ventilation based on knowledge of gas exchange

Venous Access and Medication Administration

1. Identify steps used to perform drug dosage calculation
2. Calculate the correct volume of drug to be administered in a given situation
3. Compute the correct rate for an infusion of drugs for intravenous fluids
4. Describe the steps to safely initiate an Intravenous Infusion
5. Identify complication and adverse effects associated with intravenous access
6. Explain techniques of drug administration by percutaneous routes
7. Describe the technique to obtain a venous blood sample
8. Identify steps used to perform drug dosage calculations.
9. Review mathematical principles.
10. Review mathematical equivalents.

11. Calculate the correct volume of drug to be administered in a given situation.
12. Compute the correct rate for an infusion of drugs for intravenous fluids.
13. Discuss formulas as a basis for performing drug calculations.
14. Discuss applying basic principles of mathematics to the calculation of problems associated with medication dosages.
15. Describe how to perform mathematical conversions from the household system to the metric system.

Vital Signs and Monitoring Devices:

1. Define the work respiration.
2. Describe how to evaluate the respiratory rate.
3. List the three characteristics of respiration that should be evaluated.
4. List the significance of grunting, nasal flaring and tracheal tug.
5. Describe what is meant by ventilation / perfusion mismatches.
6. List as least eight causes of hypoventilation that can result in hypoxia and hypoxemia.
7. List at least three causes of decreased diffusion.
8. List at least two causes of decreased perfusion.
9. List at least eight causes of hyperventilation.
10. Define the pulse pressure wave.
11. Describe the two methods of determining the pulse.
12. Define the term pulse deficit.
13. List the three characteristics of a pulse.
14. List the normal pulse values of the adult and child.
15. List at least ten causes of tachycardia.
16. List at least ten causes of bradycardia.
17. Describe what is meant by the term blood pressure.
18. List the three factors upon which blood pressure is dependent.
19. Describe the four factors that can cause a decrease in cardiac output.
20. Define preload and afterload and list at least four factors which can affect of them.
21. List and describe the five factors that maintain blood pressure.
22. Describe the correct method of taking a blood pressure both by auscultation and palpation.
23. List the normal values of blood pressure in children and adults.
24. List at least eight causes of hypotension.
25. List at least nine causes of hypertension.
26. Define the term pulse pressure and list at least three factors that can cause increased and decreased pulse pressure.
27. List the location of and describe how the chemoreceptors and baroreceptors regulate homeostasis.
28. Describe the four stages of pitting edema.
29. Describe how to evaluate a patient for jugular venous distention.
30. Describe the principle of Starling's Law of the Heart.
31. Describe how the paramedic can assess blood loss through postural changes in the pulse.
32. Describe the significance of the heart sounds S1, S2, S3 and S4.

Cardiology

1. Describe the incidence, morbidity and mortality of cardiovascular disease.
2. Discuss prevention strategies that may reduce the morbidity and mortality of cardiovascular disease.
3. Identify the risk factors most predisposing to coronary artery disease.
4. List two anticoagulant medications and two types of thrombolytic medications.
5. Describe the anatomy of the heart, including the position in the thoracic cavity, layers of the heart, chambers of the heart, and location and function of cardiac valves.
6. List the coronary arteries and identify the areas of the heart to which they supply blood.
7. Correlate the opening and closing of the heart valves to systole and diastole.
8. List the three layers of the arteries.
9. Illustrate the flow of a drop of blood from the heart to the toe or hand and its return to the heart.
10. Identify the major structures of the vascular system.
11. Identify and define the components of cardiac output.
12. Identify phases of the cardiac cycle.
13. Identify the arterial blood supply to any given area of the myocardium.
14. Discuss electrophysiology as it related to normal electrical and mechanical events in the cardiac cycle.
15. Compare and contrast the coronary arterial distribution to the major portions of the cardiac conduction system.
16. Identify the structure and course of all divisions and subdivisions of the cardiac conduction system.
17. Explain and label the relationship of the EKG tracing to the hearts electrical activity.
18. List the correct sequence of the conduction system of the heart that transmits the cardiac impulse.
19. Outline the activity of each component of the electrical conduction system in the heart.
20. Identify and describe how the heart's pacemaking control, rate, and rhythm are determined.
21. Explain the physiological basis of conduction delay in the AV node.
22. Define the functional properties of cardiac muscle.
23. Describe the clinical significance of Starling's law.
24. Describe the steps in EKG interpretation.
25. Describe the epidemiology, morbidity and mortality, and pathophysiology of angina pectoris.
26. List and describe the assessment parameters to be evaluated in a patient with angina pectoris.
27. Identify what is meant by the OPQRST of chest pain assessment.
28. List other clinical conditions that may mimic signs and symptoms of coronary artery disease and angina pectoris.
29. Identify the ECG findings in patients with angina pectoris.
30. Identify the paramedic responsibilities associated with management of the patient with angina pectoris.

31. Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the anticipated clinical problems according to their life-threatening potential.
32. Describe the epidemiology, morbidity and mortality of myocardial infarction.
33. List the mechanisms by which an MI may be produced by traumatic and non-traumatic events.
34. Identify the primary hemodynamic changes produced in myocardial infarction.
35. List and describe the assessment parameters to be evaluated in a patient with a suspected myocardial infarction.
36. Identify the anticipated clinical presentation of a patient with a suspected acute myocardial infarction.
37. Differentiate the characteristics of the pain / discomfort occurring in angina pectoris and acute myocardial infarction.
38. Identify the ECG changes characteristically seen during evolution of an acute myocardial infarction.
39. Identify the most common complications of an acute myocardial infarction.
40. List the characteristics of a patient eligible for thrombolytic therapy.
41. Describe the window of opportunity as it pertains to reperfusion of a myocardial injury or infarction.
42. Specify the measures that may be taken to prevent or minimize complications in the patient suspected of myocardial infarction.
43. Describe the most commonly used cardiac drugs in terms of therapeutic effect and dosages, routes of administration, side effects and toxic effects.
44. Describe the epidemiology, morbidity and mortality of heart failure.
45. Define the principle causes and terminology associated with heart failure.
46. Identify the factors that may precipitate or aggravate heart failure.
47. Describe the physiological effects of heart failure.
48. Define the term acute pulmonary edema and describe its relationship to left ventricular failure.
49. Define preload, afterload and left ventricular end-diastolic pressure and relate each to the pathophysiology of heart failure.
50. Describe the incidence, morbidity and mortality of hypertensive emergencies.
51. Define the term hypertensive emergency.
52. Identify the characteristics of the patient population at risk for developing a hypertensive emergency
53. Explain the essential pathophysiological defect of hypertension in terms of Starling's law of the heart.
54. Identify the progressive vascular changes associate with sustained hypertension.
55. Define the term cardiac arrest.
56. Identify the characteristics of patient population at risk for developing cardiac arrest from cardiac causes.
57. Explain how to confirm asystole.
58. Define the terms defibrillation and synchronized cardioversion.
59. List indications, contraindications and side effects of cardiac defibrillation.
60. List indications, contraindications and side effects of cardioversion.
61. Specify the methods of supporting the patient with a suspected ineffective implanted defibrillation device.

Trauma Overview

1. Describe mechanism of injury, assessment and management of maxillofacial injury
2. Describe mechanism of injury, assessment and management of ear, eye and dental injury
3. Describe mechanism of injury, assessment and management of anterior neck injury
4. Describe mechanism of injury, assessment and management of scalp, cranial vault and cranial nerves
5. Distinguish between the types of traumatic brain injury based upon an understanding of pathophysiology and assessment findings
6. Outline the pre-hospital management of a patient with cerebral injury
7. Calculate a Glasgow Coma Scale when given appropriate patient information
8. Describe the incidence, mortality, morbidity related to spinal cord trauma
9. Predict mechanisms of injury that are likely to cause spinal cord injury
10. Outline the general assessment of a patient with suspected spinal injury
11. Distinguish between types of spinal injury
12. Describe pre-hospital evaluation, assessment, and management of patients with spinal cord injury
13. Describe specific non traumatic spinal cord conditions and the pre-hospital assessment and management of them
14. Discuss the epidemiology and mechanism of thoracic trauma
15. Describe the mechanism of injury, assessment and management of injuries to the chest
16. Describe mechanism of injury, assessment and management of pulmonary trauma
17. Describe mechanism of injury, assessment and management of trauma to the great vessels and the heart
18. Given a specific scenario outline the pre-hospital assessment and management of musculoskeletal injuries
19. Outline general principles of splinting
20. Identify pre-hospital management priorities for open fractures

Trauma Mechanism of Injury

1. Describe the incidence and scope of traumatic injuries and deaths
2. Predict injury patterns based on knowledge of the laws of physics related to forces involved in trauma
3. Describe injury patterns related to to specific types of blunt trauma
4. Describe the roles of restraints in injury prevention
5. Identify injury patterns with pedestrian collisions
6. Identify injury patterns with motorcycle collisions
7. Identify injury patterns with care and all-terrain vehicles
8. Compare and contrast patterns between pedestrian, motorcycle and vehicle collisions
9. Identify injury patterns associated with sport injuries, blast injuries and vertical falls
10. Describe factors that influence tissue damage related to penetrating injury

Trauma Hemorrhage and Shock

1. Describe how to recognize signs and symptoms of internal and external hemorrhage
2. Define shock
3. Outline the factors necessary to achieve adequate tissue oxygenation
4. Describe how the diameter of resistance influences pre-load
5. Describe the functions of the components of blood
6. Outline the changes in the microcirculation during the progression of shock
7. List the causes of shock
8. Describe the pathophysiology associated with the progression of shock
9. Describe key assessment findings to distinguish the etiology of shock
10. Outline pre-hospital management of a patient in shock
11. Discuss how to integrate the assessment and management of a patient in shock

All syllabus and course calendars are subject to change.