



Department of Health and Exercise Science
Fall Quarter, 2013

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PEAC 106 **Scuba Diving** *Walter Lancaster*

Location: Health and Exercise Science Classroom 1 (or other assigned instructional location) & Pool
Tuesdays 6:30pm – 9:45pm

I. COURSE DESCRIPTION:

A. Bulletin Course Description:

Course Description

Basic SCUBA Diver is an entry-level course for people who have not been previously certified to SCUBA dive, and provides a comprehensive overview of basic concepts that are required to dive safely. Topics include diving equipment, diving physiology, dive planing, environmental considerations, and recognizing and managing risks associated with Open Water diving.

Participants who successfully complete the classroom and pool work will qualify for an Open Water certification experience, which must be completed if the student wishes to become a certified diver. Successful completion of the Open Water experience will result in an industry recognized and accepted certification at the level of Basic SCUBA Diver through the National Association of Underwater Instructors (NAUI).

All attendees must be age 16 or older. Students must be able to demonstrate a 10-minute swim/float in water too deep to stand in without the use of swim aids, complete a 200 meter/yard continuous surface swim and demonstrate an underwater (single breath) free dive for a horizontal minimum distance of 25 yards.

B. Instructional Materials:

Use of the recommended text and Comprehensive Resource Notebook is made available to all students as part of the comprehensive Lab Fee. Students are expected to return the instructional materials to the instructor at the conclusion of the class along with SCUBA equipment assigned to them.

Other resource materials, as listed, may be used.

Recommended Text:

John Reseck. *Scuba: Safe and Simple*

ISBN 10: **0137968302 / 0-13-796830-2**

ISBN 13: **9780137968305**

Publisher: **Prentice Hall Press**

Publication Date: **1990**

Binding: **Paperback**

Additional Resources:

Comprehensive Resource Notebook

This notebook will be loaned to each student for the duration of the course. The notebook will serve to provide students with supplemental material, diagrams, charts, tables, articles, schematics, and vocabulary not generally available in one textbook.

Free Resources:

US Navy Dive Manual Rev 6

Download the PDF version at one of these locations:

- http://www.usu.edu/scuba/navy_manual6.pdf
- <http://www.operationalmedicine.org/TextbookFiles/NavyDiveManual.htm>
- http://www.alohashoredivers.com/links/DiveMan_rev6_Frontmatter_index.pdf

C. Course Objectives:

What Will Be Covered

This comprehensive introductory SCUBA training course will enable participants to demonstrate an understanding of the following topics and skills:

- **Risks Associated with SCUBA and Skin/Free Diving**
- **Diving Equipment**
 - Basic Snorkel Gear
 - Exposure Protection and Weighting
 - Cylinders, Valves, and Regulator Systems
- **Diving Science and Adaptations**
 - Physical Properties of Air and Water
 - Gas Laws for Diving
 - Effects of Diving on Human Physiology
- **Diving Skills**
 - Skin Diving Skills
 - Basic Scuba Diving Skills
 - Managing Problems and Emergencies
- **Dive Planning**
 - Dive Planning Factors and Phases
 - Dive Tables
 - Post-Dive Planning

- **Diving Environment**
 - Introduction to Aquatic Biology
 - Potentially Dangerous Aquatic Organisms
 - Conserving and Preserving Life

The following are the basic objectives of the entry level basic SCUBA diving course, additional objectives will be addressed for those students wishing to obtain certification.

[Entries and Dives](#)

Students will be able to demonstrate at least two ways to enter open water at the beginning of a dive and at least two ways to initiate a surface dive or descent when using SCUBA equipment.

[Mask, Snorkel, Fins, Boots, Wet Suit, Tank, Regulator, BCD, Weights & Weight Belt, Pressuer Gauge, Depth Gauge, and Bottom Timer &/or dive computer.](#)

Student will be able to identify, explain the function, and be able to demonstrate appropriate of Skin & SCUBA diving equipment.

[Ear and Sinus Equalization Basics](#)

Student will be able to use the Valsalva maneuver and other ear and sinuse equalization techniques, as well as deal with common equalization problems.

[Buoyancy Basics for Scuba Diving](#)

Using weights and a BCD, students will be able to demonstrate appropriate buoyancy control and describe its importance relative to safe and easy scuba diving.

[Archimedes Principle an Essential Concept for Scuba Diving](#)

Students will be able to explain and demonstrate why Archimede's Principle is important in scuba diving and explain the differences in buoyancy when changing from fresh water to salt water.

[How Does Pressure \(Boyle's Law\) Effect Scuba Divers?](#)

Student will be able to state how and why water pressure increases with depth and the effect this pressure can have on a divers air spaces. Students will be able to describe the effects a change in pressure while divng has on equalization, buoyancy, bottom times, and the risk of decompression sickness (DCS).

[Dalton's and Henry's Laws of Partial Pressures](#)

Students will be able to explain the relationship between the increase in the partial pressure of Nitrogen and CO₂ in the breathing air and the risk of decompression sickness (DCS) as divers go deeper and/or stay longer during a dive.

[Air Consumption Rates for Scuba Diving - SAC Rates](#)

Students will be able to compare surface air consumption rates with air consumption rates when diving and the effect those rates of consumption have on the duration and depth of the dive.

[Every Dive Is a Decompression Dive](#)

Students will develop a clear understanding and be able to explain how diving involves the

compression and decompression of nitrogen and other gases in a diver's body. Based on Dalton's & Henry's Laws of partial pressure. Shifting the way in which divers commonly view recreational diving may lead to more conservative diving practices and a greater emphasis on following safety guidelines.

[Residual Nitrogen Time \(RNT\) and Scuba Diving](#)

Student will be able to describe and define a repetitive dive. Students will be able to define the term residual nitrogen and its relationship to bottom time. Students will be able to explain the importance of a safety stop at the end of dive.

[Surface Intervals \(SI\) and Scuba Diving](#)

Students will be able to define the term surface interval (SI) and the impact it would have on a repetitive dive.

[Pressure and Designation Groups and Scuba Diving](#)

Students will be able to explain what a pressure group is and what impact it may have on the depth and length of a scuba dive.

[USN NDTL Dive Tables](#)

Student will be able to plan multiple dives, within a 24hour time period, that would require a safety stop but no decompression stops.

[Out of air emergencies, equipment recovery, and ascents](#)

Student will demonstrate the ability to initiate and complete basic emergency procedures in the event they run out of air, lose their weight belt, lose their regulator, and/or have their mask flooded.

[Dangerous Marine Organisms](#)

Students will be able to recognize a number of dangerous marine organisms and explain the basic steps to be taken in the event they have a negative encounter with a dangerous, poisonous, and/or venomous marine organism.

[Class Completion & Dive Certification](#)

Upon completion of the class: 75% or higher on the final exam, a grade of Pass on the Confined Water (pool) assessment, and successful completion of five (5) Open Water (Lake and/or Ocean) the student will have the knowledge, experience, and skills necessary to receive SCUBA Certification Issued through NAUI (National Association of Underwater Instructors). Students have a period of time, one year, to complete all the requirements for certification. After one year students will have to take a refresher course if they wish to become certified.

II. COURSE REQUIREMENTS:

It is important that you demonstrate four things throughout this course: intellectual curiosity, individual proficiency with the content, equipment, and skills, ability to work effectively as a member of a buddy team, and demonstrate a spur-of-the-moment problem-solving ability under adverse circumstances.

Course Pre-Requisit: Basic Swimming

- A. In-class participation** will be expected throughout the sessions so that the student will be better able to process the information provided. Attendance will be taken and any sessions missed (either theory – classroom or practical – pool) must be made up if the student wishes to be certified as a SCUBA Diver.
- B. Formative activities** will be done during and outside of class sessions. These will generally be identified as either group or individual tasks. Assignments and their due dates are identified later in this syllabus. Other formative activities may also be assigned as needed to verify diving competency.
- C.** The **final examination** will demonstrate your ability to work individually and will show that you have developed a satisfactory level of proficiency in the subject.

D. Relative values of assignments, projects, and exams:

In-class participation	5 = % of the course grade
Formative activities (pool)	10 = % of the course grade
Final exam*	85 = % of the course grade

CheckOut Dives are for certification purposes only and have no affect on grades.

E. Grading scale:

Grades will be computed from the weighted scores and letter grades will be assigned as follows based on the highest score in the class:

	A = 100% - 94%	A- = 93 – 90%
B+ = 89 – 87%	B = 86 – 84%	B- = 83 – 80%
C+ = 79 – 77%	C = 76 – 74%*	C- = 73 – 70%
D+ = 69 – 67%	D = 66 – 64%	D- = 63 – 60 %
	F = < 59%	

*75% on the final exam is required for certification purposes

F. Additional Reuirements:

Students are required to maintain a personal record of attendance, performance, and participation in all activites in the Class Notebook.

Liability waivers on behalf of La Sierra University and the National Associaton of Underwater Instructors are required for all Confined and Open Water Activities.

A medical exam and physician's approval may be required if it is determined that a student has a medical condition that may be incompatible with diving.

III. Additional Information:

A. **Academic Honesty**

To be sure that you have no misunderstandings about the definitions of academic honesty or academic dishonesty, refer to your *La Sierra University Student Handbook*. The University has significant penalties for academic dishonesty, so please take this suggestion seriously. La Sierra University's policy and other important information regarding academic honesty can be found at <http://www.lasierra.edu/departments/psychology/AIC/>

All members of the community of scholars (students and faculty) at the university must agree to the following Academic Integrity Statement.

Understand that enrolling in this course constitutes your agreement with the following statements:

- ✓ I will act with integrity and responsibility in my activities as a La Sierra University student or faculty member.
- ✓ I will not participate in violations of academic integrity, including plagiarism, cheating, or fabricating information.
- ✓ I will not stand by when others do these things.
- ✓ I will follow the academic integrity policy.

B. **Permission or Prohibition of Recording Class or Lab Sessions:**

It is the request of the instructor that students not use any recording device or devices during the theory/classroom/lecture portion of the class. Video or other recording device may be used during the Confined Water (pool) sessions with prior instructor approval. No recording device or video devices of any type may be used on any Open Water/CheckOut dives.

C. **Attendance / excused absences**

Material or skills missed due to any absences, whether excused or unexcused, will have to be made up if the student wishes to become a certified diver.

D. **Make-up of all missed work and/or classes is required for certification purposes.**

E. **Special Assistance:**

It is the policy of La Sierra University to accommodate students with disabilities. Any student with a documented disability who requires reasonable accommodations should contact Tammy Tucker-Green, Director, Office of Disability Services at (951) 785-2453 or ability@lasierra.edu.

IV. TENTATIVE¹ COURSE SCHEDULE:

PEAC 106 **Scuba Diving** *Walter Lancaster*

Location: Health and Exercise Science Classroom 1 (or other assigned instructional locaton) & Pool

Tuesdays 6:30pm – 9:45pm

Please complete or prepare for the assignments prior to the class session for which they are listed.

Date: <small>Tuesdays</small> <small>6:30 – 9:45pm</small>	Focus of each class session: As you prepare for class, pay special attention to these topics:	Readings & Assignment(s): Due at the beginning of the class session:
Sept 24	<ul style="list-style-type: none"> 6:30 – 9:30pm First SCUBA Class Meeting 	
Oct 1	<ul style="list-style-type: none"> Barotrauma Laws-issues & Intro Swim, Mask, Tanks & Regulators Swimming Assessment (pool) 	Required Forms Due
Oct 8	<ul style="list-style-type: none"> Diving Gear & Intro to Skin & SCUBA Skills 	Lab Fee Due
Oct 15	<ul style="list-style-type: none"> Tanks + Tables & Practice SCUBA Skills 	Forms & Fee Deadline
Oct 22	<ul style="list-style-type: none"> Continue Tables & SCUBA Skills-BCD Use BlueWater Video 	
Oct 29	<ul style="list-style-type: none"> Diving Environment & Practical Skills-Rescue/BlindSwim NG video 	
Nov 5	<ul style="list-style-type: none"> Continue Diving Environment & Intro to D&R/Bailout 	
Nov 12	<ul style="list-style-type: none"> Tanks + Tables & Practice SCUBA Skills-Bailout/D&R) 	
Nov 19	<ul style="list-style-type: none"> Oceanology, Navigation, & Assessment of SCUBA Skills Resort Diving Video Complete SCUBA assessment (pool) 	In class: Complete Cert Form
Dec 3	<ul style="list-style-type: none"> Boat Diving & SCUBA Assessment BD Video Complete SCUBA assessment (pool) 	
Dec 10	<ul style="list-style-type: none"> Last Class Meeting – Final Exam Due (Exam Week) 	In class: Return all gear, text, and notebook
Nov 1 – Dec 15	<ul style="list-style-type: none"> Checkout Dives will be scheduled for those students wishing to become certified – two days of diving (5 dives) will occur on Fridays and/or Sundays at Lake Perris(SRA), CA and/or Laguna Beach, CA (<i>weather is often a determining factor when carrying out dives and inclement weather may delay certification dives and certification</i>). 	Complete Five (5) Checkout Dives

¹ This course schedule may be modified once we begin meeting as a class. It serves as a general indicator of what the instructor hopes that we can accomplish during our time together.

Appendix A: Scoring Rubric for Summative Project

The **Formative activities** will be done during and outside of confined water sessions.

The formative activities are necessary to validate the students competency in order to issue dive certification. To verify competence the students will be required to successfully complete the activities listed in the presence of the instructor or assistant. Should the instructor have concerns relative to the students performance, the student will be required to repeat that portion of the instructional program necessary to further develop the skills required. The student has one year to fulfill all requirements.

SKIN and SCUBA DIVING SKILLS

Complete a 450 yds snorkel swim, non-stop

Recover diver or weighted object from about 3 m (10 ft)

Perform skindiving techniques:

Water entries and exits

Surface Dives

Surface Swimming

Clearing the snorkel

Ditching the weight belt

Buoyancy control

Underwater swimming and surfacing

Pre-and Post-Dive Skills:

Select, check, assemble and don equipment

Pre-dive gear check for self and buddy

Defog mask

Do,ff, rinse and care for gear

Surface Skills:

Entries and exits

Perform surface buoyancy/weighting check

Surface communications for divers

Orally inflate/deflate own and buddy's BC

At surface remove (in turn) ... equipment

Face submerged, breathe thru snorkel, rest/swim

Face submerged, breathe thru water in snorkel & clear snorkel

Release simulated cramp for self and buddy

Entry, exit/use of float/flag (if applicable)

Ascent/Descent Skills:

Control pressure in air spaces

Control feet first descent with breath or BC

Controlled ascent with precautionary stop

Underwater Skills:

Give, recognize and respond to U/W signals

Mask clearing, including remove & replace

Remove, replace and clear primary regulator

Primary regulator recovery

Hover w/out support

Use of buddy system

Monitor personal and buddy air supply- communicate amount

Environmental and compass navigation

Compass navigation, bearings and reciprocal

Planning Skills:

Surface air consumption calculation

Plan/make no-deco dive between 6-18 m (20-60 ft)

Calculate repetitive no-decompression dive using tables

Environmental Skills:

Diving with minimal impact on environment

Marine life identification

Emergency Skills:

Transport 45 m (50 yds) a simulated exhausted buddy

Share air both as donor and receiver

Perform controlled emerg. swimming ascent

Alternate air share both as donor/receiver

Retrieve unconscious diver from 3 m (10 ft)

Appendix B: Lab Fee

SCUBA Class Lab Fees

Fall 2013

Plan 1 \$290.00+9cc (270.00+8cc)*# All Dive related activities + Partial Equipment Certification, & and partial equipment² rental**, Open Water Dives##, Text, **Notebook Loan** Plastic Dive Tables

Plan 2 \$270.00+8cc (250.00+8cc)*# All Dive related activities + Partial Equipment Certification, partial equipment² rental¹, Open Water Dives## and **Text & Notebook Loan**

Plan 3 \$280.00+9cc (260.00+8cc)*# All Dive related activities + All Equipment Certification, full equipment² rental**, Open Water Dives## and **Text & Notebook Loan**

Non-Plan 4 \$130.00 Open Water Only Checkout Dives## (No equipment, text, or Certification)

Plans 1, 2, & 3: If not paid by the 4th class meeting a \$50 deposit applicable to the Plan (with no discount) you choose is required to continue to use any equipment or participate in any dives.

*Pay lesser amount if all fees are paid in full by the fourth class meeting.
Add ≈3.2% for CreditCards and/or PayPal. NSF \$20.00 per check.

¹Partial Equipment² Rental: (for pool, lake & ocean use - **Included in plan #3 only**)
Mask & Snorkel > \$25.00 Fins & Boots > \$25.00

Single item rental: (for pool, lake & ocean use - **INCLUDED IN PLANS #1-3)

Tank / Air	\$40.00	Regulator	\$40.00
B/C	\$40.00	Air / transport	\$20.00 (your tank)
Pool/ocean weight belt	\$20.00	Wetsuit (complete)	\$40.00

Payment Plans:
Weekly, Monthly, or ? - A minimum deposit of \$50 is required by the 4th class meeting

Non-Plan checkout dives - \$30per dive-day.

²*Students are responsible for all materials & equipment checked out to them for the duration of the class and all materials & equipment checked out must be returned in good, useable condition. Any equipment lost, damaged, or made unuseable is the responsibility of the student and must be repaired and/or replaced at the student's expense. Students may use personal dive gear if it meets the standards set by the instructor.*

Experienced Divers: Anyone taking the class to advance to another level of certification will be required to complete activities and assignemnts outside the normal classroom, pool, and checkout dive setting. This includes other dives, i.e. Night Dive. Students in this category will follow **Plan 2** listed above.