



## CMAS QUALIFIED NITROX DIVER

6 Days

Costs include:  
Extra costs:

Boat trip, Certification, Gas mixes  
Equipment

### I. Course classification (Type & Level)

1. Classification

The CMAS ADVANCED NITROX DIVER course is considered an advanced-level speciality course.

2. Validity period

There is no specific period of validity for this certificate.

3. Benefits & responsibilities

Successful students will be qualified to dive using all nitrox mixtures, and to use pure oxygen for decompression purposes.

### II. Aim(s) & Objectives of course

- To provide the diver with a good understanding of the techniques involved in the use of nitrox mixtures for bottom and/or decompression use, including the use of pure oxygen for decompression purposes.
- To make the diver aware of the additional physiological problems encountered when using nitrox mixtures and pure oxygen.
- To provide the diver with a good understanding of the special dive planning procedures appropriate to diving with nitrox mixtures and pure oxygen.
- To provide the diver with a good understanding of the problems of equipment oxygen compatibility and standards for gas mixing
- To provide the diver with the opportunity to gain further experience using nitrox .

### III. Entry requirements (prerequisites)

Student's minimum age :	18 years
Certification level :	2-star Diver CMAS and CMAS Basic Nitrox Diver, or equivalents
Minimum number of dives :	50 (at least 5 of these using nitrox mixture)
Medical certificate :	according to member federation requirements,

### IV. Maximum student/instructor ratios

According to member federation requirements.

### V. Instructor / assistants requirements

1. Instructor/course director

Certificate level :	national/CMAS 2-star instructor
Speciality :	CMAS Advanced Nitrox Instructor or equivalent
Proof of experience :	Instructor must be in active teaching status as required by his national federation. Must be of proven ability and experience (at least 20 logged dives in this speciality).

2. Assistants

As required by the course director.

**VI. Special course requirements**

- Course outline : must be approved by the federation's Technical Committee or must use a standard outline proposed by the federation itself.
- Course approval : approval by national technical committee.
- Facilities : adequate classroom, according to the needs of the course and the students, normal open water diving site.
- Depth limits according to qualification level of each diver (as a maximum under best conditions) and according to local circumstances.
- Minimum duration of any one dive is 15 minutes.
- All diving is to be done within a maximum oxygen partial pressure limit of 1.6 bar.
- Supervision : During the complete course, at least one authorised course director (instructor as outlined above) must always be present.

**VII. Student performance objectives**

By the end of the course, students should be able to :

a) knowledge-related :

1. Identify the problems and advantages related to diving with nitrox mixtures and oxygen.
2. Explain the physiological phenomena associated with diving with nitrox mixtures and oxygen.
3. Correctly use standard diving equipment for diving with nitrox up to 40% and equipment rated for oxygen service for diving with higher concentrations of oxygen.
4. Demonstrate their knowledge of diving with nitrox mixtures and oxygen.

b) skill-related :

Students should be able to demonstrate their ability to plan and execute dives using nitrox mixtures, including decompression stops using oxygen.

**VIII. Minimum course duration**

- a) Minimum duration of course : 6 days
- b) Recommended number of sessions : 5 sessions.
- c) Minimum classroom duration : 6 hours (2 sessions)
- d) Minimum number of dives : 6 dives. One dive should include the use of oxygen during decompression.

**IX. Quality control / assurance**

CMAS strongly recommends and encourages all federations to use an adequate system for quality control and assurance. A system in widespread use and of proven effectiveness is to send questionnaires to the students, followed by an analysis of the feed-back.

Questionable cases should be further investigated and measures taken to avoid similar situations in the future.

## 6.2CMAS ADVANCED NITROX DIVER: PART II (TRAINING PROGRAM)

### I. Course schedule

1. Recommended number of sessions : 5 sessions over two days
2. Minimum duration : classroom 6 hours (2 sessions) , open water 3 hours (3 sessions).
3. Minimum number of dives : 3 dives using nitrox should be included in the course, one of which should include decompression using pure oxygen.
4. Lessons & topics (brief overview) : See II.1.

### II; Minimum course content (syllabus)

#### 1. Theory lessons (Classroom)

##### 1.1 TH1 (classroom ; approx. 90 minutes.)

- a) **Introduction**, course administration
- b) **Topics** : Advanced oxygen theory, advanced physiology and gas toxicity theory, including reasons for, and methods of avoiding, central nervous system toxicity and pulmonary toxicity, and effects of these on human physiology.

##### 1.2 TH2 (classroom ; approx. 90 minutes.)

- a) **Introduction**
- b) **Topics** : The symptoms and effects of nitrogen on human physiology and the reduction or avoidance of these effects by the use of appropriate nitrox mixtures, within recreational diving depths. Recognition of symptoms of decompression sickness and emergency treatment procedures.

##### 1.3 TH3 (classroom ; approx. 90 minutes.)

- a) **Introduction**
- b) **Topics** : Advanced deep diving procedures for depths to 40 metres, including appropriate equipment selection, practical decompression management using different gases. Advanced decompression planning for dives using different gas mixtures and pure oxygen.

##### 1.4 TH4 (classroom ; approx. 90 minutes)

- a) **Introduction**
- b) **Topics** : Suitability of equipment for use with nitrox and oxygen. Gas mixing methods. Gas management and gas analysis.

#### 2. Practical lessons (Confined and Open Water)

##### 2.1 PR1 (open water, dives 1 ; approx. 1 hr.)

- a) site orientation, dive planning, depth limits, choice of mixture.
- b) pre-dive briefing, equipment check including gas analysis
- c) open water dive 1 ; objectives : observe nitrox diving depth disciplines.
- d) specific equipment : oxygen analyser
- e) post-dive review (debriefing)

##### 2.2 PR2 (as PR1 but with use of nitrox as a decompression gas)

##### 2.3 PR3 (as PR1 but with use of pure oxygen as a decompression gas)

### III. Knowledge review & skills assessment

#### 1. Theoretical knowledge :

- a) suggested type: final evaluation
- b) suggested form: written,
- c) suggested structure: 4 main topics, 5 questions for each, allotted time 45 minutes.

- d) question technique: multiple-choice,
- e) allowed support material (for student): decompression tables, EAD tables.

#### **IV. Awarding of certification material**

May be given to successful students at end of course. Only students who have attended the whole course (and/or successfully passed any required assessment / evaluation) may receive the corresponding recognition material :

- CARD
- BADGE
- WALL CERTIFICATE