EXPERT GROUP REPORT

FOR

AWARDS SEEKING ADMISSION TO

THE UCAS TARIFF

THE ADVANCED PLACEMENT PROGRAMME

February 2006

CONTENTS **Page**

INTRODUCTION

The UCAS Tariff is a new points score system for entry to HE from September 2002. It replaces the existing A-level points system. The new system was developed to reflect a wider range of qualifications currently offered by applicants to and accepted by Higher Education Institutions. It also embraces substantial reforms to post-16 qualifications implemented from September 2000, popularly known as Curriculum 2000. These reforms completely restructured GCE A/AS levels, replaced the Advanced GNVQ with a suite of VCE awards, and introduced more emphasis on the attainment of Key Skills. For the first time, the points system accommodates Scottish Framework Qualifications.

The Tariff was developed with three specific purposes in mind as follows:

- To report achievement as a points score to Higher Education
- To allow admissions staff to make flexible offers
- To allow broad comparisons to be made between different types of achievement and different volumes of study

The table on the next page shows the points values within the Tariff of the qualifications currently contained within the system:

INSERT TARIFF TABLE

The Tariff and the National Qualifications Framework

The Tariff gives numerical values to qualifications, and establishes agreed equivalences between the types of qualifications covered. The system allows broad comparisons to be made between applicants with different volumes of study and types of achievement. The equivalences derive from those established within the English, Welsh, and Northern Irish National Framework of Qualifications. Qualifications admitted to the framework are the subject of a rigorous regulation system operated by three sister regulatory authorities, led by the Qualifications and Curriculum Authority. The framework has been developed to give coherence and clarity to the provision of qualifications. It includes three broad categories of qualifications:

- General, e.g. GCE A-level and the new GCE AS
- Vocationally-related, e.g. Applied A level
- Occupational, e.g. National Vocational Qualifications.

Details of the accreditation process are contained in the publication *Arrangements for the statutory regulation of external qualifications in England, Wales and Northern Ireland.*

The Tariff – promoting wider access to Higher Education

The Tariff is highly relevant in the context of the UK government's aim to increase participation rates in Higher Education, in that it covers both standard and non-standard entry routes. One of the features of the expansion of HE over the last decade has been an increase in the types of qualification presented by applicants, some of which may be vocational, some general, some taken mainly by adults, and so on. The advantage of the Tariff is that it facilitates comparison across applicants with very different types and sizes of achievement. It also ensures that UCAS communicates information to HE admissions and academic staff about the nature of such achievements, and that entry requirement information is collected.

The Tariff – including qualifications from other countries

The qualifications which form the subject of this report, the Advanced Placement Programme (the APP) examinations, have been offered in the United States since 1956. The Programme and its assessment are overseen by the College Board. In recent years the programme has grown significantly. More than 60% of US High Schools participate in the programme, and more than 3,500 colleges and universities in over 30 countries, including those in the UK, accept students on the basis of their AP exam results, admitting them to a degree programme or providing advanced placement, or credit or some combination of these. Although most universities in the US and Canada use the AP examinations to give students credit for the first year introductory course in and/or to place students into an advanced course a given discipline, in many other countries, including those in Europe, the AP examinations are used for admission to HE. This report is therefore intended to provide information for HE admissions tutors on how AP students compare with their A Level counterparts.

THE CONDUCT OF THE COMPARABILITY STUDY

In order to ensure a robust and transparent procedure for allocating UCAS tariff points to qualifications seeking admission to the framework, UCAS approached the University of Oxford, Department of Educational Studies for assistance in developing an appropriate methodology. Acknowledging the problematic nature of comparability studies, the Department proposed a procedure based on the premise that such comparisons can only be achieved through the exercise of collaborative judgement by an expert group. Guidelines were drawn up for the composition of the Expert Group, the evidence that would need to be collected and examined and the choice of a benchmark qualification. Procedures were developed for the conduct of the work of the expert group, including detailed sets of questions to be addressed at different stages in the process.

On this occasion the guidelines were translated into a series of tasks which Expert Group members were asked to complete prior to the Expert Group meeting (see Section 4).

The judgements made by the Expert Group in this report are presented as suggested allocations of UCAS points which take account of the size and demand of the award seeking admission to the Tariff and a candidate's level of attainment within that award. However, the guidelines provide for an automatic review process to be conducted at a later stage in the light of further evidence. This latter point acknowledges the fact that both benchmark qualifications and those seeking admission to the Tariff may still be relatively new. Consequently there may only be a relatively small amount of evidence available at the time of the work of the Expert Group. There is, therefore, a need to review the decisions of the Group when more evidence becomes available and when HE admissions tutors have gained more experience of using the awards as entry qualifications.

The work of the Expert Group is subject to a quality assurance procedure, which includes scrutiny of the Group's report by an independent auditor from Higher Education.

SUMMARY AND RECOMMENDATIONS

This report provides details of the Comparability Study conducted by an Expert Group to consider the admission of the subjects offered by the Advanced Placement Programme in the United States to the UCAS Tariff. Section 1 sets out the composition of the Expert Group.

Section 2 contains an overview of the Advanced Placement (AP) Examinations, which are linked to the level of first-year US university courses, are designed to test a student's discipline-specific knowledge, skills, and proficiencies. There are currently 34 Advanced Placement Examinations in 19 academic disciplines, with AP Italian Language and Culture and AP Russian Language and Culture coming in 2005/2006; and AP Chinese Language and Culture and AP Japanese Language and Culture coming in 2006/2007. The purpose of all AP examinations is to provide universities with information about the level of knowledge and proficiency students bring. Most universities in the US and Canada use AP examinations to give students credit for the first-year introductory course in a given discipline, to place students into advanced courses in a given discipline, or both.

Section 3 contains a description of the aims, content and assessment of the three AP examinations selected for the Comparability Study: Chemistry, English and Economics. These were selected as a sample of subjects across a range of cognate disciplines – a science, a language and a social science. In addition, they are subjects taken by a large number of students. Finally, they span the distinction within the AP programme between one semester courses, (macro-economics and micro-economics), and two semester courses, (English and Chemistry). The description of each of these subjects is followed by an overview of each of the awards against which the subject is benchmarked, namely OCR GCE A level Chemistry, AQA GCE A level English Language and Literature and Edexcel GCE A level Economics.

Section 4 reports on the proceedings and findings of the Expert Group which, for the majority of the meeting worked as three Subject Groups. Subsequent additional work to clarify the size and demand of the full range of AP subjects was carried out and is also reported in Section 4.

Section 5, drawing on the work of the Subject Groups and the additional work undertaken on Physics, provides a mechanism for the allocation of UCAS Tariff Points to the range of subjects offered by the AP Programme.

Relationship between course length, size and demand

In the light of the work of the Expert Group and further discussion with AP personnel, it became apparent that the distinction between AP courses based on their length (one semester or two semesters) in practice reflects a division between those courses which:

- Build on pre-existing knowledge developed through prior high school experience – typically the two semester programmes such as English and Chemistry
- Introduce new subject material – typically the one semester courses such as micro and macro economics.

It became clear from the work of the subject groups that this distinction is evident both in terms of the length of the courses and in the level of demand of their assessment and has therefore been taken into account in the allocation of UCAS Tariff Points. The one exception

to this division is the AP Physics B and C courses. These are each a one semester AP course. However, as shown in Section 4.4, if taken together these two courses are broadly comparable to GCE A level Physics in size and demand.

Classification of AP subjects

Given the above analysis, it was decided for the purposes of allocating UCAS Tariff Points to classify the AP programmes into two groups as is shown in the table below:

- Group A consists of those subjects which build upon pre-existing knowledge developed in high school and where the level of assessment demand is consequently higher than in the Group B subjects

- Group B subjects are characterized as being more akin to "survey"[1] courses, introducing learners to new subject content and assessed with a slightly lower level of demand than the Group A subjects.

Group A subjects	**Group B subjects**
Biology Calculus AB Calculus BC Chemistry Physics (as half courses B and C) English Literature and Composition English Language and Composition French Language French Literature German Language Italian Language and Culture Latin Literature Latin: Vergil Spanish Language Spanish Literature *NOTE: Foreign Language and Literature AP courses typically require 4 prior semesters of study.* European History United States History World History	Art History Studio Art (Drawing Portfolio) Studio Art (2-D Design Portfolio) Studio Art (3-D Design Portfolio) Computer Science A (a one-term course) Computer Science AB (a two-term course) Environmental Science Government and Politics: Comparative Government and Politics: United States Human Geography Macroeconomics Microeconomics Music Theory Psychology Statistics

[1] A type of course that is offered in the first or second year of a four year degree programme that introduces a learner to a broad range of concepts from either a discipline or a field.

Recommended allocation of UCAS Tariff Points

Achievement in Group A subjects would attract the following UCAS Tariff Points (halved for physics):

Grade 5 –120 UCAS Tariff Points
Grade 4 – 90 UCAS Tariff Points
Grade 3 – 60 UCAS Tariff Points

Achievement in Group B subjects would attract the following UCAS Tariff Points:

Grade 5 – 50 UCAS Tariff Points
Grade 4 – 35 UCAS Tariff Points
Grade 3 – 20 UCAS Tariff Points

This recommended allocation of UCAS Tariff Points is conditional upon whether the UCAS systems can deal with this complexity.

SECTION 1: THE COMPOSITION OF THE EXPERT GROUP

The following individuals with expert knowledge and experience of the qualifications under consideration in this study were selected:

GCE A Level Examiners
Dr Helen Eccles, Chair of Examiners for Chemistry, OCR
Mr Andy Archibald, Principal Examiner for English Language and Literature, AQA
Mr Quintin Brewer, Chief Examiner for Economics, Edexcel

Advanced Placement Programme Examiners
Dr John Gelder, Professor of Chemistry, Oaklahoma State University
Dr Eric Wimmers, Assessment Specialist and Senior Examiner, Educational Testing Service
Mr James Spellicy, AP Teacher and Examiner for Economics

Higher Education Representatives
Dr Hugh Cartwright, Department of Chemistry, University of Oxford
Dr Sam Durrant, Undrgraduate Admissions Tutor, Leeds University
Dr John Lane, Department of Economics, LSE

The CVs of the nine Expert Group members are provided in Appendix 1.

Anne Matthews, Jennifer Tuson and Richard Skerrett acted as facilitators for the work, ensuring that the Group worked systematically through the procedures laid down in the Protocol.

Helen Wakefield, Fiona Ford and Anne Marie Watson from the UCAS Outreach Department, acted as Secretaries to the Group.

The whole process was overseen and quality assured by Dr Geoff Hayward, as an independent representative of Higher Education.

SECTION 2: OVERVIEW OF THE ADVANCED PLACEMENT PROGRAMME

This section contains an overview of the Advanced Placement Programme. Section 3 contains a description of the aims, content and assessment of each of the AP examinations selected for the Comparability Study, followed by an overview of each of the awards against which the AP examination is benchmarked.

GENERAL DESCRIPTION OF THE ADVANCED PLACEMENT PROGRAMME

Aims and purpose of the qualification

Advanced Placement (AP) Examinations, which are linked to the level of first-year US university courses, are designed to test a student's discipline-specific knowledge, skills, and proficiencies. There are currently 34 Advanced Placement Examinations in 19 academic disciplines, with AP Italian Language and Culture and AP Russian Language and Culture coming in 2005/2006; and AP Chinese Language and Culture and AP Japanese Language and Culture coming in 2006/2007. The purpose of all AP examinations is to provide universities with information about the level of knowledge and proficiency students bring. Most universities in the US and Canada use AP exams to give students credit for the first-year introductory course in a given discipline, to place students into advanced courses in a given discipline, or both.

History of the qualification

The Advanced Placement Program was established under the jurisdiction of the College Board in the academic year 1955/1956, with the first AP Exams administered in the spring of 19566. The AP Program was begun initially to provide serious academic courses with high standards and rigorous end-of-course testing for students in their senior year to ensure that they used that year in an academically responsible and worthwhile manner. The AP Program began small, with 6 premier East Coast US secondary schools, including Lawrenceville, and Exeter providing students and examiners who worked together with 6 elite East Coast US universities, including Harvard, Yale, and Princeton. The program grew dramatically over the decades to the extent that in May 2005 1.2 million students took 2.1 million Advanced Placement Examinations. More than 60% of US high schools participate in the program, and more than 3,500 colleges and universities in over 30 countries, including those in the UK, admit students with satisfactory AP Exam grades (usually 3, 4, or 5), providing either admission, advanced placement, or credit, or some combination of these. The AP Program is currently offered in 100 countries worldwide.

Entry requirements for the qualification

The College Board does not put a specific requirement for participation in AP courses and examinations. Individual schools set their policies. The College Board recommends that schools allow all interested and committed students who are willing to do the required work to participate in AP courses. The College Board also recommends that all students who take an AP course also take the affiliated and culminating AP Exam.

Age of candidates

Most candidates take AP exams in grades 11-12. Most are between the ages of 16 and 18.

Hours

Advanced Placement courses are usually one full year of a high school subject. Typically students meet 5 days a week in roughly 45-minute sessions each day for a school year, which begins in late August or early September and concludes with the administration of the AP Exams in May. In some cases a school may decide to make a particular AP course longer than one year, either by adding summer preparation before the school year, by requiring a pre-requisite course, or by adding Saturday sessions a few months before the onset of the AP Exams. The number of hours are devoted to AP courses in all subjects is determined by each school, though the typical framework is the year-long course meeting 4 hours per week.

Content and structure of the qualification

All Advanced Placement Examinations, with the exception of Studio Art AP Exams, consist of two major parts: a multiple-choice question part and a free-response part. In math and science APs, the free-response sections consist of problems or laboratory scenarios; for arts, history, humanities, and others the free-response sections consist of essay questions. The value ratio of the multiple-choice to the free-response section is typically in the range of 55% multiple-choice and 45% free response (though students are provided on average twice as much time to complete the free-response section as they have for the multiple-choice sections. The thirty-four AP Examinations in 19 academic disciplines are grouped under the following categories: English, Foreign Languages, Mathematics, Sciences, History and Social Sciences, and the Arts.

Except for foreign language examinations (French, German, Latin, and Spanish—with Chinese, Italian, Japanese, and Russian to come--AP Exams are offered in English only.

Assessment – procedures, methods and levels

AP Examinations are offered one time in the first two weeks of May. Beginning in 2007, some AP subjects will also be offered in the second two weeks of May, with schools deciding which examination period during which the administer their AP exams. Different but equivalent forms will be provided for each exam session. Currently different but equivalent forms are also provided for the Alternate testing date exams for students unable to take the regular exams. There are also varied forms offered to students in different time zones. AP Exams are paper and pencil exams that usually last 3 hours. Their level is calibrated to that of the first-year American university curriculum—the introductory course in the various disciplines.

Grading

AP Examinations are graded on a scale of 1 through 5, with 1 being the lowest and 5 the highest AP grade. These AP grades are arrived at by compiling scores for each part of the AP Examination. For the AP English Literature Exam, for example, students receive points for each multiple-choice question they answer correctly, with a ¼ point deduction for incorrect answers—to discourage guessing. Each of the three essay questions on AP English Literature is scored by readers on a 1-9 point scale with 1 the lowest and 9 the highest score. The scores are tallied, with a multiple for the three combined essay scores to reach a composite score with a maximum of 150 points. Grade cuts are made by the Chief Reader—the Chief Faculty Consultant for each AP Exam—in consultation with ETS test development

specialists responsible for each AP Exam and with input from data analysis experts who compare the performance of a particular year's students with those from earlier years via a set of equated items that appear in the same place on both exams. Once grade cut points are established, students receive their AP grade on the 5-point scale, according to where their composite score falls on the spectrum.

QA systems and code of practice

Standardization of grades from year to year is achieved via the equating multiple-choice question sets that appear on previous exams and through analysis by expert examiner/readers based on their year to year experience evaluating free-response questions in their disciplines. AP Exam grades are highly reliable, due to carefully followed procedures, including detailed grading rubrics for each free-response question, training in holistic scoring by expert experienced AP readers for each discipline, and precise procedures for recalibration when readers return from their coffee and lunch breaks. Readers are grouped together at tables with a table leader, who backreads papers to check on the consistency of readers at the table. The tables are grouped together so that only readers reading a particular question or question set are together and so discussion of the scoring process can take place in the room at large under the direction of the question leader—all to ensure consistency in applying the scoring rubrics and to ensure that each student is given an equal and fair assessment.

SECTION 3: OVERVIEW OF AP SUBJECTS AND THE BENCHMARK AWARDS

This section contains a description of the aims, content and assessment of the three AP examinations selected for the Comparability Study: Economics, Chemistry and English. These were selected as a sample of subjects across a range of cognate disciplines – a science, a language and a social science. In addition, they are subjects taken by a large number of students. Finally, they span the distinction within the AP programme between one semester courses, (macro-economics and micro-economics), and two semester courses, (English and Chemistry).

Each of the benchmark awards described in this section was chosen because they represented the closest match in aims and content to qualifications which had already been admitted to the UCAS Tariff.

3.1 AP CHEMISTRY

Aims and purposes of the qualification

The aim of the AP Chemistry program is to provide a 1 year college-level chemistry course to highly qualified and motivated students who are enrolled in high school. In general terms, the Chemistry programme is intended to:

- develop an appreciation of the field of chemistry specially and science in general
- develop the ability to think clearly and to express ideas, orally and in writing, with clarity and logic
- develop an understanding of those fundamental chemical concepts covered in the typical college level introductory chemistry course
- develop problem solving skills and critical thinking skill which are appropriate for demonstrating an understanding of the fundamental chemical concepts
- develop experience using basic laboratory equipment, safely handling standard chemicals, follow laboratory procedures, collect and organize experimental data, perform typical calculations using experimental data, and reach conclusions based on experimental data.

History of the qualification

The AP Chemistry examination has been administered since 1955. It format has evolved slowly over this period to its present format. The most recent significant change occurred in 1999 when there was a change in the choice questions in the essay portion of the AP Chemistry examination. Prior to 1999 students answered a total of six questions but the selection was slightly different. All students were required to answer Question 1; students could answer either Question 2 or Question 3; all students were expected to answer Question 4; and students could answer any two essay questions from a set of four possible essay questions. In 1999 the AP Chemistry examination changed to its current format of one required quantitative question; a choice quantitative question; a required question on chemical equations; a required essay question; and a choice essay question.

Entry requirements

One year of high school chemistry.

Age of candidates

16 - 18

Hours

A minimum of 290 minutes per week. Of this period at least 90 minutes, preferably in a single session, should be devoted to the laboratory.

Content and structure of the qualification

The following outline for an AP Chemistry course is intended to be a guide to the level and breadth of treatment expected rather than to be a syllabus. The percentage after each major topic indicates the approximate proportion of multiple-choice questions on the exam that pertain to the topic.

I. Structure of Matter (20%)
II. States of Matter (20%)
III. Reactions (35-40%)
IV. Descriptive Chemistry (10-15%)
V. Laboratory (5-10%)

Assessment – procedures, methods and levels

The AP Chemistry examination is nationally administered on a specific date in May each year. The total time allocated to take the examination is 180 minutes. The first 90 minutes is composed of 75 multiple choice questions, which counts 45% of the student's grade. The multiple choice section is completed without the aid of a calculator, or any other support in the form of equations, tables or figures. The one exception to this is the availability of a periodic table which includes the atomic number, symbol and atomic mass of all know elements.

The second 90 minutes is composed of eight questions and commonly referred to as the Free-response portion of the examination. While there are a total of eight questions there are two pairs of choice questions for which students are to answer one of each pair. So the total number of questions answered by each student is six. The Free-response portion of the exam is separated into two timed sections; the first section for which students are allowed to use a calculator (graphing calculators are allowed) and are given 40 minutes to complete, consists of one required question and the first pair of choice questions. So students have 40 minutes to answer two questions. Typically the required question is a quantitative problem focusing on an equilibrium concept. The pair of choice questions in this section are quantitative and cover any topic.

At the end of this 40 minute period students must put away their calculator for the remaining 50 minute period. During the remaining 50 minutes students must answer the remaining four questions. During this period the examination contains 3 required questions and the last pair of choice questions that a student must select from. If the student answers these four questions in less than 50 minutes they can return to the first section of the Free-response

portion of the examination, however, they are not allowed to use a calculator. The required questions in this portion of the examination includes a question on writing chemical equations, a question focused on the laboratory and a required essay question that can cover any topic. The choice questions in this section are also of an essay nature, requiring little if any calculations.

During the Free-response portion of the examination students have access to a periodic table, a table of selected standard reduction half-reactions and their cell potentials, and two pages of common mathematical equations and constants.

3.2 OCR GCE A LEVEL CHEMISTRY

Aims and purposes of the qualification

The aims of the GCE AS and A Level specifications in chemistry are to:

- develop essential knowledge and understanding of the concepts of chemistry, and skills needed for the use of these new and changing situations
- develop an understanding of the link between theory and experiment
- be aware of how advances in information technology and instrumentation are used in chemistry
- appreciate the contributions of chemistry to society and the responsible use of scientific knowledge and evidence
- sustain and develop enjoyment of, and interest in, chemistry.

In GCE only
- to bring together knowledge of ways in which different areas of chemistry relate to each other.

History of the qualification

The current chemistry syllabus was developed from the modular chemistry syllabus which was introduced in 1991, and was revised in 1993/4.

Entry requirements

Grade CC in GCSE Science: Double Qualification (or equivalent).

Age of candidates

Normally 16 – 18.

Hours

There is no official guidance on the number of hours of guided learning. It varies widely in Centres from about 3.5 to 6 hours per school week.

Content and structure of the qualification

The OCR specification is based on a modular structure with three modules at AS Level and three at A2. At AS level students must study the first two modules and Component 01 of the third module. At A2 Level students must study the first module, Component 01 and one of Components 02 – 06 of the second module, and Component 01 of the third module.

AS Modules		A2 Modules	
2811	*Foundation Chemistry* Atoms, Molecules and Stoichiometry Atomic Structure Chemical Bonding and Structure The Periodic Table	2814	*Chains, Rings and Spectroscopy* Further organic chemistry and spectroscopy
2812	*Chains and Rings* Organic chemistry	2815	Component 01: *Trends and Patterns* Component 02: *Biochemistry* Component 03: *Environmental chemistry* Component 04 : *Methods of analysis and detection* Component 05: *Gases, liquids and solids* Component 06: *Transition elements*
2813	Component 01: *How Far, How Fast?* Enthalpy, rates and equilibria Component 02: *Coursework* Component 03: *Practical Examination*	2816	Component 01: *Unifying concepts* Further enthalpy, rates and equilibria Component 02: *Coursework* Component 03: *Practical Examination*

Assessment – procedures, methods and levels

Each of the above modules leads to an Assessment Unit with the same number and title.

AS Assessment Units 2811 and 2812 and Component 01 of 2813 are each assessed by a written examination. In addition, for 2813, students must choose to enter either Component 02 (coursework) or 03 (the practical examination).

At A2, Assessment Unit 2814, Component 01 and the Centre/candidate's choice of 02 to 06 of Assessment Unit 2815, and Component 01 of Assessment Unit 2816 are each assessed by a written examination. In addition, for 2816, students must choose to enter either Component 02 (coursework) or 03 (the practical examination).

Coursework

The skills assessed are:

- Planning
- Implementing
- Analysing evidence and drawing conclusions
- Evaluating evidence and procedures

These skills can be assessed in the context of separate practical exercises, or a single whole investigation. Candidates' work is internally marked and externally moderated. There are four descriptors for each skill, to a maximum of 8 marks, applied hierarchically.

Practical examination

This tests the same skills as the coursework. The planning exercise is done before the practical examination. The candidate develops this plan in 500 – 1000 words.

Grading

Grades are awarded in line with OCR procedures and the QCA Code of Practice

The raw mark for each Assessment Unit is converted to a Uniform Mark Scale (UMS) and then converted to a grade for each unit. For both the AS and the full A Level qualifications the total marks for all units are converted to the UMS and then to a five-grade scale: A, B, C, D and E. Candidates who fail to reach the minimum standard for Grade E will be recorded as U (unclassified) and will not receive a qualification certificate.

Individual Assessment Unit results are reported.

QA systems and code of practice

The qualification works within the terms of the QCA's *'GCSE, GCE, VCE and GNVQ Code of Practice'*.

3.3 AP ENGLISH LITERATURE AND COMPOSITION

Aims and purposes of the qualification

An AP English Literature and Composition course is meant to include the content and skills taught in an introductory U.S. college or university course in reading and writing about literature. As in such a university course, the goal of an AP English Literature course is to engage students in the careful reading and critical analysis of literature of various genres and periods. The essence of the AP course is thoughtful reading and critical writing.

Reading: Students read works from several genres and periods—from the sixteenth to the twenty-first century—but, more importantly, they get to know a few works well. Careful attention to literary artistry and textual detail as well as to the work's social and historical context provides a foundation for interpretation from a variety of critical perspectives. Students learn to move from a subjective response, including precritical impressions and emotional responses, to interpretation, the understanding that a work may have multiple meanings based on a careful reading of the text. Finally, reading in the course includes evaluation, assessment of a work's artistic quality and a consideration of the social and cultural values it reflects. Through their close reading of the texts, students also become aware of the relationship between language and literature and come to understand that the language writers use has changed dramatically through history and that today English exists in many national and local varieties.

Writing**:** Writing in the course focuses on the critical analysis of literature and includes expository, analytical, and argumentative essays. Through their analysis of literary texts, including essays, students become aware of the linguistic resources open to them in their own writing. Writing instruction includes attention to developing and organizing ideas in clear,

coherent, and persuasive language. It includes study of the elements of style and the importance of precision and correctness. Emphasis is placed on helping students to develop stylistic maturity characterized by

- a wide-ranging and exact vocabulary
- a variety of sentence structures
- logical organization, enhanced by such techniques of coherence as repetition and transitions
- a balance of generalization with specific illustrative detail
- an effective use of rhetoric, including awareness of audience and appropriateness of tone

The writing that students produce in the course reinforces their reading. Reading and writing are taught together to underscore both their common and their distinctive elements.

History of the qualification

AP English Literature was one of the first subjects included in the Advanced Placement program when it began in 1955. The motivating force behind the program was to raise the level of achievement in high school by offering able and motivated students the challenge of a university-level course, followed by a rigorous national examination. In addition to the satisfaction derived from reading and writing about complex and interesting works of literature, high school students who passed the exam were rewarded with placement into advanced courses when they entered college or university, having already completed the equivalent of the introductory course. Over the years, the AP English Literature and Composition course has come to reflect changes in the curriculum, notably by the breadth of works that are included in a typical course. But the insistence on careful analytical reading of a variety of texts has remained constant.

Entry requirements

Different high schools have different requirements for admission to an AP course. But the course builds on several years previous study of English and a broad experience with poetry, prose, and drama. The principal difference between the AP course and a normal senior English course is the breadth and depth of the reading and the sophistication of the analytical writing required. Increasingly, schools are allowing students themselves to decide whether they are up to the challenge of the AP course.

Age of candidates

Normally 16 -18 years old. (High school juniors or seniors.)

Hours

The number of classroom hours devoted to the course varies from school to school. Typically, however, class contact time is approximately 4 to 5 hours per week over a 36-week school year.

Content and structure of the qualification
Since there is no prescribed list of readings or set curriculum for AP English Literature, teachers are free to prepare students for the exam in a variety of ways. By reading the description of the skills described in item 1 and by studying published exams, teachers become aware of the level of performance required for a passing grade (3-5) on the exam. Since the exam includes poetry, prose, and sometimes drama from several periods, students should study a wide range of texts. But the emphasis of both the course and the examination is on the skill of literary analysis, in response to the multiple-choice questions and in performance on the essays, and the skills required can be honed by the reading of many different texts from many different critical perspectives. This freedom of choice in their curriculum is highly valued by the English teachers who prepare students for the AP exam.

Assessment – procedures, methods and levels

The AP English Literature and Composition exam is given once a year, in May. It is a 3-hour examination consisting of a one-hour multiple-choice section and a two-hour essay section.

Section I typically consists of 55 multiple-choice questions based on four or five poems or prose passages, previously unseen by the candidates. On the 2004 examination, these were: 1) a prose passage of about 700 words from a contemporary American novel, *Einstein's Dreams*, by Alan Lightman; 2) a prose passage of about 600 words from George Eliot's *The Mill on the Floss*; 3) "The Albuquerque Graveyard," a poem published in 1971 by the African-American poet Jay Wright; 4) a passage of about 250 words from an essay by Samuel Johnson from *The Idler* (1759); 5) Shakespeare's Sonnet 90 ("Then hate me when thou wilt...").The multiple-choice questions require students not merely to construe the meaning of parts of the texts but to identify stylistic features or patterns, to respond to nuances of characterization or tone, and to interpret the effect of figurative language or other literary techniques.

Section II consists of three 40-minute essays on topics previously unseen by the candidates. Question 1 is typically an essay requiring the analysis of a poem (or pair of poems); Question 2 requires analysis of prose passage; Question 3 requires students to apply a general critical statement about literature to a novel or play of their own choosing. (In 2004, the poems for Question 1 were Emily Dickinson's "We grow accustomed to the Dark" and Robert Frost's "Acquainted with the Night"; the prose text fro Question 2 was from Henry James's story "The Pupil"; the critical observation for Question 3 was Roland Barthes's "Literature is the question minus the answer.")

3.4 AQA GCE A LEVEL ENLGISH LANGUAGE AND LITERATURE A

Aims and purpose of the qualification

The specification is intended to provide candidates with a progression from the knowledge, understanding and skills established at GCSE. It caters for those who wish to develop their study of English to GCE AS or A Level, providing a foundation for those who wish to study either Language or Literature or related subjects in Higher Education.

The overall aim of the specification is to:

- Encourage candidates to study language and literature as interconnecting disciplines in ways which deepen their understanding and enjoyment of these studies.

At AS, the specification aims to:

1. Encourage candidates to develop their ability to use linguistic and literary critical concepts and analytical frameworks in commenting on a wide range of spoken language and written texts;
2. Encourage candidates to develop as independent, confident and reflective readers;
3. Enable candidates to relate literary and non-literary texts to the contexts in which they were produced;
4. Enable candidates to develop their skills in speaking and writing for different purposes and audiences.

At A Level, the specification aims to:

1. Broaden and deepen candidates' knowledge and understanding, encouraging them to evaluate different analytical approaches to the interpretations of texts;
2. Enable candidates to make comparisons and connections between a range of texts, taking account of the social, cultural and historical factors which influenced them;
3. Enable candidates to be able to select approaches most appropriate for their investigation and research.

History of the qualification

The new specification was introduced in September 2002. It was developed out of the highly successful AEB 0623 specification. There has been a conscious retention of many of the elements which characterised the old specification; the emphasis on the interconnection of language and literature as mutually supportive disciplines; a broad range of classic and contemporary texts; the importance of analytical and comprehension skills; the emphasis on writing for a variety of purposes. There is also the introduction of new components that sit comfortably within the spirit of the old specification, including the opportunity for comparative study, and an emphasis on playing to candidates' linguistic strengths. To this end, the more formalised linguistic element helps to inform the literary components of this specification.

Entry requirements

It is recommended that candidates should have acquired the skills and knowledge associated with a GCSE English course or equivalent before commencing study for this specification.

Age of candidates

Normally 16 – 18 years old.

Hours

There is no official guidance on the number of guided learning hours. Typical class contact time is approximately 4 – 5 hours a week over 30 weeks of the year.

Content and structure of the qualification

The AQA specification is based on a modular structure with three modules at AS Level and three at A2.

AS Modules		A2 Modules	
1	*Language Production* Writing for specific audience/evaluation of process	4	*Comparative Literary Studies* Paired texts studied comparatively
2	*Poetic Study* 1 text from 6: 3 pre-1900, 3 post 1900	5	*Text and Audience* Dramatic study, adaptation of texts for audience
3	*Study of Language of Prose and Speech* 1 prose text, 1 speech text	6	*Language in Context* Analytical comparison, evaluation of methods

The A2 modules build on the skills and processes developed at AS Level as candidates' study of Language and Literature widens and deepens.

Assessment – procedures, methods and levels

Each of the above modules leads to an Assessment Unit with the same title. There are six examinations normally taken over the course of the two year programme, three at AS Level in May of the first year and three at A2 Level in June of the second year. Assessment Unit 6 is the synoptic unit for the whole GCE A Level.

Each examination paper contains one or two sections, each section requiring one question to be answered, except for Unit 5 where Section B comprises two questions.

There are six Assessment Objectives (AOs) which are given different weightings in each paper. AOs 1, 4, 5 and 6 are common to both AS and A Level. AOs 2 and 3 also apply to both, but are extended at A Level to reflect the more sophisticated level of response required. For example, candidates at AS Level are required to describe, explain, interpret and evaluate texts; at A Level they are required to demonstrate a more penetrating and evaluative analysis of the texts they study.

All examination questions are marked against the relevant AOs. Each AO is amplified by a series of generic descriptors of performance at each of five mark bands.

Grading

Grades are awarded in line with AQA procedures and the QCA Code of Practice

The raw mark for each Assessment Unit is converted to a Uniform Mark Scale (UMS) and then converted to a grade for each unit. For both the AS and the full A Level qualifications the total marks for all units are converted to the UMS and then to a five-grade scale: A, B, C,

D and E. Candidates who fail to reach the minimum standard for Grade E will be recorded as U (unclassified) and will not receive a qualification certificate.

Individual Assessment Unit results will be certificated.

QA systems and code of practice

The qualification works within the terms of the QCA's *'GCSE, GCE, VCE and GNVQ Code of Practice'*.

AP Economics

Aims and purposes of the qualification

Aims and objectives of the specification and assessment are that students:

- Develop a solid framework of basic economic knowledge
- Analyse and explain how a market-based economy responds to economic change
- Apply economic concepts and theories across a wide range of economic situations
- Consider how economic choices affect their lives and the lives of people around them
- Engage in greater participation in societal affairs as voters, consumers and producers

History of the qualification

Instruction for the specifications started in 1988. The first micro and macro exams were given in 1989. Economists who served on the AP Test Development Committee in Economics selected the material included in the course descriptions. In establishing the courses and examinations, the Committee surveyed the economics departments of the 200 US institutions receiving the most AP grades in all subjects. Using the information obtained about the typical content covered in an introductory college level micro and/or macro course, the Committee developed the course outline and had multiple-choice questions covering the outline pretested on college students enrolled in introductory courses. At the Committee's discretion, course outlines and examinations are updated to reflect changing emphasis in college introductory courses. The earliest versions of the examinations included fifty multiple-choice questions and 1-2 written responses for each course. Since 1994, the examination has included sixty multiple-choice questions and 3 constructed responses for each course. From inception, two courses were designed as well as two separate examinations.

Entry requirements for the qualification (including literacy standards)

There is no formal entry requirement for this subject. Each school or department may set its own qualifications. The College Board encourages all schools to broaden any requirements so as to include more candidates. Many schools require a grade of B or higher in English and Mathematics.

Age of candidates

Students between the ages of 16-18 usually take the courses. In most states, the courses are offered to Year 12 students only.

Hours

In Year 12 most students will receive anywhere between 3.5 and 4.5 hours per week over 18 weeks (a semester) for a course, totaling between 63-81 hours. Many schools are able to offer only one of the courses. It is estimated that less than 15% of all schools administering the examination offer both courses over a yearlong period (36 months or two semesters).

Content and structure of the qualification

The Assessment in Microeconomics would include multiple-choice questions and constructed responses that challenge the student to demonstrate a thorough understanding of the principles of economics that apply to the functions of individual decision makers, both consumers and producers, within the economic system. Primary emphasis is placed on the product market. Additional instruction evaluates the factor market and the role of the government in promoting greater efficiency and equity in the economy. The multiple-choice questions, all of which have been tested at the college level, are of three types: definitional, analytical and synthesis. The AP Test Development Committee in consultation with ETS and the College Board sets the percentage of each type of question. Twenty questions are repeated for a five-year span as a means of evaluating groups from year to year. Forty new questions are added each year.

The questions (60) are broken down into categories or topics and a certain percentage assigned for each category. In Micro, the breakdown is as follows:

1. Basic Economic concepts (8-14%) or 5-8 questions
2. The nature and functions of product markets (50-70%) or 30-42 questions
3. Factor markets (10-18%) or 6-11 questions
4. Market failure and the role of government (12-18%) or 7-11 questions

The Assessment in Macroeconomics follows the same general outline. The examination places particular emphasis on the study of national income and price-level determination. Students are made familiar with economic performance measurements, the financial sector, stabilization policies, economic growth, and international economics.

The questions (60) are broken down into categories or topics and a certain percentage assigned for each category. In Macro, the breakdown is as follows:

1. Basic economic concepts (8-12%) or 5-7 questions
2. Measurement of economic performance (12-16% or 7-10 questions
3. National Income and Price Determination (10-15%) or 6-9 questions
4. Financial Sector (15-20%) or 9-12 questions
5. Inflation, Unemployment, and Stabilization Policies (20-30%) or 12-18 questions
6. Economic Growth and Productivity (5-10%) or 3-6 questions
7. Open Economy: International Trade and Finance (10-15%) or 6-9 questions

The constructed response questions can come from part of the course syllabus.

Assessment – procedures, methods and levels

The Assessment is designed for qualified students who wish to complete studies in secondary school equivalent to a one-semester college-level introductory course. The AP examinations in Macroeconomics and Microeconomics are offered one time in the second week of May. Currently, different but equivalent forms are provided for the Alternate testing date exams for students unable to take the regular exams due to illness, etc. Varied forms of the AP Econ exams are offered to students in different time zones. The exams are paper, pencil, and ink exams lasting approximately 130 minutes (70 minutes are allotted for the 60 multiple choice questions, 10 minutes for reading the Section II constructed responses and formulating responses, and 50 minutes for writing formal responses to the constructed response questions. All students take the same multiple-choice exams on any given date. Only the Section II constructed responses vary by time zone, and date. The constructed response questions are developed by the Test Development Committee and can range across the entire curriculum.

Edexcel GCE A Level Economics

Aims and purposes of the qualification

The aims of the specification are to encourage students to:

- develop an understanding of economic concepts and theories through a critical consideration of current economic issues, problems and institutions that affect everyday life
- apply economic concepts and theories in a range of contexts and to appreciate their value and limitations in explaining real world phenomena
- analyse, explain and evaluate the strengths and weaknesses of the market economy and the role of the government within it
- participate effectively in society as citizens, producers and consumers

History of the qualification

Teaching for the new specification started in September 2000. It was developed out of the previous syllabus (9120) with the division of the material into 6 units, 3 at AS level and 3 at A2 level. An optional unit (unit 5) was retained with modifications (labour markets and economic development).

Entry requirements for the qualification (including literacy standards)

While there is no formal entry requirement for this subject, the vast majority of candidates have at least 5 GCSE subjects at grade C or above. Many centres insist on a grade B or higher in Mathematics and English.

Age of candidates

This course is usually taken by students aged between 16 and 18

Hours

In Year 12 most students will receive 3-4 hours per week over about 30 weeks, totally 90 to 120 hours. In Year 13 most students will receive 4-5 hours over 30 weeks, totally 120 to 150 hours.

Content and structure of the qualification

The qualification is structured into six units:

AS Units		
Unit 1	Markets – how they work	These 2 units cover microeconomic themes. A theoretical understanding is required together with the ability to apply it to real world issues e.g. market for oil, housing market, transport, health.
Unit 2	Markets – why they fail	
Unit 3	Managing the economy	This unit provides an introduction to macroeconomics with a focus on the UK macroeconomy.
A2 Units		
Unit 4	Industrial Economics	This unit covers the technically challenging area of market structures.
Unit 5	Option A: Labour Markets Option B: Economic Development	
Unit 6	The UK in the global economy	Unit 6 is the synoptic unit which examines the UK in the context of the global economy. Therefore, there is a focus on macroeconomics in an international context.

Assessment – procedures, methods and levels

There are six examinations normally taken over the course of the two year programme. At AS level there are three one hour examinations, two data response style papers and one multiple choice style paper requiring, in addition, written justification of the choice made. At A2 level there are three longer papers (respectively 1¼, 1½, and 1¾ hours), the first incorporating both data response and supported choice questions and the second requiring short essay responses to a case study question. The third, the synoptic paper, requires the candidate to complete one essay and one data response question, where the emphasis will be on the students' ability to think as economists and to use the economist's toolkit of concepts, theories and techniques that they have built up during their course of study.

Assessment is designed to cover 4 objectives: knowledge, application, analysis and evaluation. Typically, specific marks are allocated to these objectives in the examinations.

The assessment objectives vary over the papers but the overall weightings at A2 are as follows:

Knowledge: 20%
Application: 20%
Analysis: 30%
Evaluation 30%

There is no coursework.

Grading

Grades are awarded in line with Edexcel procedures and the QCA Code of Practice.

The raw mark for each Unit is converted into a Uniform Mark Score (UMS) and then converted into a grade for each unit. For both AS and the full A level qualifications the total marks for all units are converted to the UMS and then to a five point scale: A, B, C, D and E. Candidates who fail to reach the minimum standard for Grade E will be recorded as U (unclassified) and will not receive a qualification certificate.
Individual assessment units are reported but not certificated.

QA systems and code of practice

With the advent of e-pen marking systems, QA is helped by continuous monitoring of examiners' performance.

The qualification works within the terms of QCA's 'GCSE, GCE, VCE and GNVQ Code of Practice'.

SECTION 4: THE WORK OF THE EXPERT GROUP

Preparatory work

Prior to the Expert Group meeting, all members of the Subject Groups were sent copies of the AP course descriptions and examination documentation and the A level syllabuses, together with other relevant documentation, and were asked to complete a number of tasks in preparation for the meeting. These tasks required group members to compare the aims, content and assessment models of the two sets of examination requirements. Preliminary mapping exercises for each subject were provided to assist this work. In addition, group members were asked to review a number of candidate scripts at significant grade boundaries.

The Expert Group Meeting

The Expert Group met on one occasion for two days to examine and discuss the evidence listed in Appendix 2. This section contains an account of the deliberations of this meeting.

The first day began with a number of short briefing sessions, including:

- Dr Geoffrey Hayward briefing the group on the aims and conduct of a Comparability Study
- Dr Robert DiYanni presenting an overview of the AP Programme.

The briefing sessions were followed by a question and answer session to ensure that all group members were clear about the general context and intentions of the APP, both in the US and internationally. An overview of the AP Programme is provided in Section 2. A key point, of relevance to all the subjects, to be noted here is that there are no centrally prescribed syllabuses for the AP Programme. The College Board produces a wide range of support material for teachers in schools, including example syllabuses developed and implemented by individual teachers. The curriculum content, however, is essentially inferred from the examination, and each teacher will design her or his syllabus based on this information together with her or his own areas of interest and expertise.

The Expert Group then spent the majority of the remaining time in Subject Groups with plenary sessions to compare progress held at appropriate points. An account of the work of each group and its findings is set out below.

4.1 THE CHEMISTRY GROUP

Introduction

The Subject Group was tasked with benchmarking the AP Chemistry examination offered by the College Board against GCE A level and AS Chemistry, with particular reference to the specification offered by OCR.

The Subject Group's work was confined to the AP Chemistry examination and did not consider the AP course itself. The assumption was made that in most cases students taking the AP Chemistry examination will have had two years of learning as preparation. While students all take the same examination, there is considerable flexibility in the delivery of the

course. By contrast, the teaching of GCE AS and A level Chemistry is governed by a detailed specification or examination syllabus which conforms to nationally agreed criteria.

Comparing aims and objectives

The aims of the GCE A level and AS specifications are to:

- Develop essential knowledge and understanding of the concepts of chemistry, and skills needed for the use of these in new and changing situations
- Develop an understanding of the link between theory and experiment
- Be aware of how advances in information technology and instrumentation are used in chemistry
- Appreciate the contributions of chemistry to society and the responsible use of scientific knowledge and evidence
- Sustain and develop enjoyment of, and interest in, chemistry.

The AP award has no similar published set of aims and objectives. Nevertheless the AP Examiner supplied his own summary of the aims and purpose of the qualification. The AP Chemistry programme provides a one-year college-level Chemistry course to highly-qualified and motivated students who are enrolled in High School.

Its aims are to:

1. Develop an appreciation of the field of Chemistry specially and science in general
2. Develop the ability to think clearly and to express ideas, orally and in writing, with clarity and logic
3. Develop an understanding of those fundamental chemical concepts covered in the typical college level introductory Chemistry course
4. Develop problem solving and critical thinking skills which are appropriate for demonstrating an understanding of the fundamental chemical concepts
5. Develop experience using basic laboratory equipment, safely handle standard chemicals, follow laboratory procedures, collect and organise experimental data, perform typical calculations using experimental data and reach conclusions based on experimental data.

The AP Programme does not include written learning objectives, but these are implied in the syllabus content. However, it was the Subject Group's judgement that, despite the different level of detail in the way in which the two qualifications are specified, the general aims of the AP award are similar to the assessment objectives of GCE A level and there is a good match between the two qualifications in terms of intellectual skills. Both programmes encourage students to develop an appreciation for chemistry and an interest in learning more about the subject.

However, there are differences between the two programmes over analytical instrumentation, the contributions of chemistry to society and the responsible use of scientific knowledge and evidence. The coverage of Organic Chemistry in GCE A level/AS is much more extensive than in the AP. However, the AP takes Physical Chemistry further than A level.

Structure of the awards

The A level qualification is normally taken over two years preceded by GCSE Chemistry and Science. It is currently made up of three AS units and three A2 units, each having an external examination. The AS, as well as forming the first half of an A level programme, is also a substantive qualification in its own right.

The AP course is intended to be delivered in one year, culminating in a single examination. However, the chemistry programme is developing and building upon knowledge and skills developed through prior learning in High School chemistry.

Determining size – comparison of study hours

It was the Group's judgement that the amount of time taken for the A level and AP courses is similar. For both programmes the recommended number of hours varies according to the centre. The A level Chemistry course requires about 180 hours of study per year over two years. The AP Chemistry course involves approximately five hours per week over 36 weeks in one year e.g. 180 hours. The AP course advises a minimum of 90 minutes per week in the laboratory. The AP programme does not provide any suggestions as to the nature of the first year chemistry course experience – this is regarded as a local issue, and the assessment is solely on the second year. This is closer to the model of the former two-year linear A level.

Determining size – comparison of content

The Subject Group decided that the fairest way to compare the two qualifications was to focus on Physical Chemistry and to judge what is missing from A level by comparison with the AP, and what is missing from the AP in comparison with the A level. How much further does the AP Physical Chemistry go than A level? How much does this compensate for the lack of Organic Chemistry? The differences would be measured in terms of both area and depth.

The mapping exercise showed that the AP examination:

- Basically covers all the content of unit 2811 and half-units 2813/01, 2816/01
- Covers some of half-unit 2815/01
- Also covers roughly another half-unit of content (the option 2815/05 is the best match)
- Goes beyond the physical chemistry covered in 2813/01 and 2816/01 in some areas
- Does not cover any but the most basic of organic chemistry or transition element chemistry (the whole units 2812 and 2814 are not covered)

The Group proceeded to identify areas of content unique to each award as shown in Table 1.

Table 1: Areas of content unique to each award

List A: Aspects of the AP content not included in the A level syllabus	List B: Aspects of A level content not included in AP examination
Equilibria	Born-Haber cycles
Lewis acids	Partition coefficient
Dipole moment	Raoult's Law
Faraday's Laws	Phase diagrams
Buffers	Solvent extraction
Common ion effect	Distillation
pH, pK to depth	
Rds and mechanisms	
2^{nd} and 3^{rd} law	

It was the Group's judgement that List A is significant and represents eight weeks of work, while List B is less substantial and accounts for about three weeks. This would suggest that there are about five weeks less work in the non-organic areas of A level than the AP. AP students are likely to be better physical chemists.

The Group then turned to an examination of Organic Chemistry in A level and the AP, focusing on the extent to which aspects of the AS Module 2812: Chains and Rings and the A2 module 2814 Chains, Rings and Spectroscopy are reflected in the AP. It was the Group's conclusion that about three quarters of 2812 and the whole of 2814 are missing from the AP. As 2812 is an AS unit and therefore relatively easy, the difference between the two qualifications in terms of Organic Chemistry is one and a half units.

The Group then turned back to Physical Chemistry and examined the A2 Modules 2815: Trends and patterns/options in Chemistry and 2816: Unifying concepts in Chemistry/Experimental skills 2. They found that a further half unit of content was covered in inorganic chemistry and spectroscopy in A level and not in the AP; this accounts for, approximately, the five week difference between the physical chemistry contents. Therefore, the AP is two units less than the A level; most of the missing content is organic chemistry. This rough calculation does not take into account the disparity between learning and assessment of practical skills.

Comparing assessment objectives

GCE AS and A level have formal assessment objectives as follows:

AO1: Knowledge with understanding
AO2: Application of knowledge and understanding, analysis, synthesis and evaluation
AO3: Experiment and investigation
AO4: Synthesis of knowledge, understanding and skills

Overall there is little difference between questions. Indeed, some questions could be regarded as interchangeable between the two examinations. The simple recall questions in GCE tend to feature as multiple choice questions in the AP. Generally it was felt that the AP questions are narrower in subject area and that A level questions are broader in their coverage. AP questions tended to cover AO2 (application of knowledge and understanding, analysis and evaluation) with very little coverage of AO1 (Knowledge with understanding), whereas A level questions all tend to contain some AO1 and AO2, as well as AO4.

The Group noted that the AO3 practical assessment objectives (Experiment and investigation) are not tested by the AP and it is not clear whether AP students have these skills. While evidence is not provided by the AP examinations themselves, the AP examiner indicated that many AP students would in practice be undertaking this kind of experiment. However, this is a matter for individual centres.

The AP examination contains questions based on laboratory situations. However, it may be possible to answer this well without having carried out laboratory work. HEIs in the USA would be likely to require prospective students to produce their laboratory manuals to confirm that they have carried out such work. In progressing to HE in the UK, it was considered that previous laboratory work was a benefit, not in the quality of work that first year students are able to carry out, but in knowing appropriate terminology.

It was the Group's judgement that in practice A level and AP students would be likely to be of equal ability to perform practical work at university and that the apparent difference between the requirements of A level assessment objective AO3 and the AP is not materially significant in terms of the end product. In any case a deficiency in practical skills can be made good in HE and is not so serious as, for example, a mathematical deficiency, the skills in question being at a relatively low level.

AO4 goes further than the AP and is synoptic in nature, counting for 20% of the A level assessment. It was the view of the AP examiner that AP candidates would not have trouble with the A level synoptic questions but they are not included as such in the AP examination. The general feeling was that the difference in synopticity is not of great significance.

The HE representative had little firsthand experience of the AP Chemistry and had taught personally only one AP candidate – this student had achieved a First. However, the AP examiner indicated that the AP is also taken by students of lower calibre. It was the HE experience that, although practical skills are assessed in A level, the actual level of practical skills of HE entrants is variable. This is also potentially true of AP students.

Comparing examination requirements

Given the modular structure of the GCE A level Science specification, there are six examinations normally taken over the course of the two year programme, three at AS level in May of the first year and three at A2 level in June of the second year. Two units, one in AS and one in A2, have a 50% course work component. Synoptic assessment is a key feature of A level, representing 20% of the assessment in Chemistry.

The AS is below the standard of full A level and covers the more accessible material. The A2 should go slightly beyond A level standard. The weighting of individual units is clearly defined in the specification, but the AS and A2 overall are weighted 50/50.

The AP Chemistry examination is a three-hour examination covering a full-year introductory college course. The examination consists of 90 minutes of multiple-choice questions and 90 minutes of free response questions consisting of two quantitative problems (one on chemical equilibrium and one chosen from two other problems), one question requiring students to write net-ionic equations for chemical reactions, and three essay questions (two required,

with one of those based on the laboratory work, plus one chosen from the two other essay questions)

Comparing levels of attainment – candidate evidence

The AP does not have formal grade descriptions. GCE AS/A2 has both grade descriptors and performance indicators for the borders of grades for each assessment objective. At awarding, Grades A and E are determined judgementally and the rest of the grades are determined arithmetically.

The Group started by looking at Grade A in paper 2816/01 in comparison with AP Grade 5. It was felt that the Grade 5 AP scripts were of Grade A standard and that the grade A scripts were of a slightly higher standard than the Grade 5 AP scripts. At the borderline Grade 5 students did not do so well, but the AP paper was felt to be more difficult, suggesting that there is overall comparability.

Comparisons between 2815/1 and the AP showed Grade A A level scripts to be slightly below AP Grade 5.

The Group also reviewed 2813/01 (AS). There seemed to be a clear mapping of Grade A against Grade 5. In 2811 (AS) the scripts map well against the equivalent achievement in the multiple choice questions in the AP; this confirmed that the AS level is tested mostly in the multiple choice AP questions.

Aligning the grades

The Group was satisfied from this evidence that there is a good correlation between Grade A at A level/AS and Grade 5 in the AP in those areas where there is a match in the curriculum. Further investigation using 2816 showed a match between AP Grade 3 and A level Grade E.

The AP does not go further than A2 except for Physical Chemistry. However, it was the Group's judgement that A level students would be able to cope with the additional AP material.

The Group moved to a preliminary mapping of the two grading systems using the equivalence of Grade 5 and Grade A as a starting point. There was discussion about the possible equivalence of Grade 3 and Grade E, but it was felt that the borderline Grade 3/2 scripts were better than borderline Grade E and were more akin to E/D.

While Organic Chemistry (as in paper 2814) is missing from the AP, it was felt that Grade 5 students would be able to pick it up readily. However, Grade 3 students would find this more difficult and the lack of Organic Chemistry might justify rating Grade 3 as Grade E.

The Group moved to an initial attempt to assign Tariff points to the AP. While it was thought that the AP might rate as $5/6^{th}$ of an A level, ie 100 points at Grade A, it was felt that the high level of Physical Chemistry justifies 120 points. A greater degree of uncertainty existed within the chemistry group about the value of the AP Grade 3. One perspective would be that while the borderline Grade 3 is better than borderline Grade E, the missing Organic Chemistry brings it down to Grade E, i.e. 40 points. However, the AP examiner pointed out that a significant proportion of AP candidates achieve Grade 3 and that the alignment with

Grade E might potentially have a significant impact on their chances of admission to HE courses in the UK. His view was that the Grade 3 might represent a rather wide band of achievement. Thus, better Grade 3 students might map more closely to Grades C/D, and middle-ranking universities in the USA would be happy to admit students with the AP at Grade 3. The Group therefore looked at the AP4/3 borderline. Only limited evidence was available, but it was felt that a high Grade 3 is a borderline B/C (say 70 UTPs) and a low Grade 3 is a borderline D/E (say 50 UTPs); taking the average of these gives a value of 60 UTPs for the Grade 3.

Allocating UCAS Tariff Points

It was therefore agreed to recommend the allocation of the following UCAS Tariff points to the AP Chemistry examination:

Grade 5	120
Grade 4	90
Grade 3	60
Grades 1 and 2	0

This recommendation is based on the view of the expert group that the AP covers the most useful areas of Chemistry for admission to chemistry degree courses at UK HEIs, and that ability in Physical Chemistry is a good overall indicator of performance at HE level. However, it is important to note the lack of organic chemistry content in the APP which some HEIs might find unacceptable. This should be made clear to AP students applying to British HEIs.

4.2 THE ENGLISH GROUP

Introduction

The AP English Course Description booklet contains the aims and intentions and sample examination questions for both English Language and Composition and English Literature and Composition. In order to explore the coverage of these two examinations, the English Principal Examiner had mapped both examinations against the GCE A Level English Language and Literature syllabus since this syllabus represents the broadest representation of what is on offer in the fields of language and literature in the UK at present. It also has the advantage, for this exercise, of having no coursework. Group members therefore devoted their initial discussion to a general exploration of the three awards in order to agree which of the two AP examinations should be benchmarked against the GCE AL examination.

It was noted that both AP examinations are set by the AP English Development Committee to provide two alternative but equally rigorous and demanding routes to meet differing students' needs. Both examinations require common skills in reading and writing.

With regard to English Language, it was noted that a central difference between the US and the UK GCE English examinations is that the English Language syllabus in the UK is now based largely on ideas from linguistics (syntactic theory, first language acquisition, the analysis of speech, etc.). These areas are not directly replicated in the AP English Language and Composition examination. From his experience as an examiner for a range of GCE English Literature syllabuses, the Principal Examiner noted that the AP English Literature

and Composition examination does, however, cover largely similar areas to the 'literary criticism' elements of the UK English Language and Literature GCE A Level examination.

It was therefore decided to benchmark the AP English Literature and Composition examination against the GCE in English Language and Literature chosen originally by the Principal Examiner, acknowledging that there would be some elements of the English Language aspects of the UK syllabus which would not be reflected in the US examination.

Comparison of aims and objectives

The aims of the two awards are specified in different ways. Those of the GCE A level are presented according to the requirements of the regulatory body overseeing national syllabuses. Those of the AP Programme are implicit in the course description. Group members compared the A level aims with the AP course description (see Table 2 below) and agreed that the aims of the two awards were very similar. Both awards emphasise the relationship between language and literature and the need to study texts closely in order to understand their purpose and effects.

As anticipated in the discussion on the choice of syllabuses for the exercise noted above, the GCE A level syllabus chosen includes an emphasis on linguistic terms and analysis of spoken language not found in the AP award. The purpose of the A level is to teach candidates to select from a number of frameworks in their approaches to the work studied. It was felt, therefore, that since some of these frameworks were also represented in the AP syllabus, it was possible to accommodate the difference in content between the two awards. Both awards, it was felt, aimed to develop the same levels of critical analysis and evaluation.

Table 2: Comparing A level and AP course aims

GCE A level English aims	**Extracts from AP English Literature and Composition course description**
The aim of the specification is to: . encourage candidates to study language and literature as interconnecting disciplines in ways which deepen their understanding and enjoyment of these studies.	An AP English course in Literature and Composition should engage students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students should deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students should consider a work's structure, style and themes as well as such smaller scale elements as the use of figurative language, imagery, symbolism, and tone.
At AS The specification aims to: 1. encourage candidates to develop their ability to use linguistic and literary critical concepts and analytical frameworks in commenting on a wide range of spoken language and written texts; 2. encourage candidates to develop as independent, confident and reflective readers; 3. enable candidates to relate literary and non-literary texts to the contexts in which they were produced; 4. enable candidates to develop their skills in speaking and writing for different purposes and audiences.	Reading in an AP course should be both wide and deep. *This reading necessarily builds upon the reading done in previous English courses. These courses should include the in-depth reading of texts drawn from multiple genres, periods, and cultures.*

At A Level the specification aims to: 1. broaden and deepen candidates' knowledge and understanding, encouraging them to evaluate different analytical approaches to the interpretations of texts; 2. enable candidates to make comparisons and connections between a range of texts, taking account of the social, cultural and historical factors which influenced them; 3. enable candidates to be able to select approaches most appropriate for their investigation and research.	In their AP course, students should also read works from several genres and periods – from the sixteenth to the twentieth century – but, more importantly, they should get to know a few works well. They should read deliberately and thoroughly, taking time to understand a work's complexity, to absorb its richness of meaning, and to analyse how that meaning is embodied in literary form. In addition to considering a work's literary artistry, students should consider the social and historical values it reflects and embodies. Careful attention to both textual detail and historical context should provide a foundation for interpretation, whatever critical perspectives are brought to bear on the literary works studied. ..the approach to analysing and interpreting [the works] should involve students in learning how to make careful observations of textual detail, establish connections among their observations, and draw from those connections a series of inferences leading to an interpretive conclusion about a work's meaning and value.

Structure of the awards

As with all GCE A Levels, the AQA specification comprises six modules, three to be completed for the AS award normally in the first year of the course, with a further three required for the full A Level qualification normally at the end of the second year. In the English specification, the AS modules are designed to begin the development of the skills and processes which candidates will be required to demonstrate at greater depth in the A2 modules.

The AP course is intended to be delivered in one year culminating in a single examination.

Determining size – comparison of study hours

It will be noted from the section above that the AP Programme is designed to take one year, whereas the AL course is normally delivered over two years. This evidence could be seen to suggest that the AP is smaller than the AL. However, the group agreed that the following information should be taken into account:

- The fact, also noted above, that the work done in the AS course is largely echoed at a higher level in the A2 courses, so that the appropriate comparison *might better be made* between the A2 course and the AP course..

- The fact that admission to an AP course is based on several years previous study of English and a broad experience with poetry, prose and drama (see Aims above), work which is at least equivalent to the AS course. In fact, many students actually complete the AP English Language and Composition course in the year prior to taking the English Literature and Composition course.

It was the judgement of the group that a student embarking on an AP course would have equivalent skills, knowledge and understanding to a successful AS candidate and would have spent at least as many study hours as an AS candidate on this prior work.

Although neither award prescribes the number of study hours required, each depending on individual school's timetabling arrangements, a comparison of the typical class contact time for both the AP programme and the second year of the A level course indicates that each is likely to be allocated approximately 4 hours per week or some 120 hours over the whole year. If the AS study time and the time required to prepare for entry to the AP programme are taken into account, (particularly if this is the AP English Language and Composition course which, like the AS is allocated some 4 hours a week), the number of study hours required to complete each award is broadly similar.

Determining size – comparison of content/breadth and depth of coverage

Based on their preparatory work group members were able quickly to agree that both awards broadly covered the same content areas, including:

- Analysis of poetry, prose and drama
- Comparative studies
- Awareness of audience
- A range of modern and pre 1900 texts

Certain differences between the two awards were noted:

- The GCE A level includes the analysis of spoken language and the use of linguistic terminology which, as already noted, is not part of the AP examination
- The GCE A level specifies the range of texts a student must read. Some of the examinations are open book and others closed book.
- It is likely that the range of texts studied by an AP student will be broader than those studied by an A level candidate partly because there is no centrally set syllabus and partly in order to ensure coverage of the wide range of unseen texts in the examination.
- A large section (45%) of the AP examination is devoted to a testing multiple choice paper. (See discussion under Comparison of Examination Requirements)

In summary, the group agreed that the vast majority of the content of the two awards is comparable and that the potentially broader range of texts studied by AP students could be set against the study of the spoken language required by A level candidates. On the basis of this analysis, the group therefore agreed that the two awards appeared to be comparable in size. This finding supported their earlier conclusion from the analysis of study hours that the two awards are comparable in size.

Comparing assessment objectives

The group was unanimous in its view that the assessment objectives for the two awards are entirely similar. Although specified differently, the group endorsed the analysis conducted by the AQA Principal Examiner during the preparatory work and provided in Table 3 below.

Table 3: Comparing assessment objectives

AQA Assessment Objectives	AP Assessment Objectives
Clear communication Appropriate terminology Accurate written style	**Clear communication** Wide-ranging vocabulary Variety of sentence structure Logical organisation Balance of general and specific Effective use of rhetoric
Comparison of texts Distinguish/describe Interpret variation	**Comparison** of texts Awareness of genre/period
Analysis of texts Use of literary/linguistic approaches Awareness of spoken/written forms	**Analysis** of texts Structure/style/theme Careful critical analysis of rhetoric Literary/rhetorical terminology Difference between oral and written discourse
Context awareness Style/genre/period	**Context** awareness Texts from 16th c. – 21st c.
Attitudes and values Awareness of methods	**Attitudes and values** Awareness of methods Historical change
Purposes and audiences Awareness of methods	**Purposes and audiences** Awareness of methods Formal/informal language

Comparing examination requirements

Given the modular structure of the GCE A level English specification, there are six examinations normally taken over the course of the two year programme, three at AS level in May of the first year and three at A2 level in June of the second year. While the requirement to demonstrate similar skills and processes therefore occurs at both AS and A2 Levels, the A2 candidate is expected to demonstrate a more sophisticated use of these skills and processes, reflecting their developing maturity of perception. For the AP there is a single examination taken at the end of the course, normally in May. There is no coursework in either syllabus and all examinations are externally marked.

A comparison of the requirements of the two examinations is given in Table 4.

Table 4: A level and AP examination requirements

GCE AL A2 papers		AP English Literature and Composition	
Paper 4: Comparative Literature 1 question (essay) on prose or drama or poetry Open book Comparison of two texts : 1 Modern, 1 Pre 1900	1hr 30 mins (15%)	Section 1: Multiple Choice 55 questions on 3 unseen prose texts/2 poems Range of modern/pre 1900 texts	1 hr (45%)

Paper 5: Texts and Audience 3 questions (essays): 1 on drama text (passage provided) 1 production task based on passages 1 evaluation of method/comparison	2hrs 15 mins (5%)	Section 2: Essay/Composition 3 essays: 2 literary analyses: 1 prose; 1 poem (unseen texts provided) 1 discursive/thematic (based on wider reading) Range of modern/pre 1900 texts	2hrs (55%)
Paper 6: Language in Context 2 questions (essays): 1 analytical comparison 1 evaluation of methods	2hrs 30 mins (20%)		

The group noted a number of issues which could have a bearing on the level of demand of the respective examinations:

- The A2 examinations comprise essay questions only, whereas the AP exam is based on multiple choice questions and essay questions.
- A2 candidates have considerably more time to complete the essay questions than the AP candidates
- The A2 examinations contain a mixture of open book and unseen texts, whereas the AP examination is based entirely on unseen texts
- A2 candidates have considerable choice of questions; AP candidates have no choice.

The group discussed the most significant difference between the two examinations, namely the use of multiple choice tests in the AP examination. While such an assessment methodology is not currently a normal feature of a GCE A level English examination, it was recognised by the group that the AP questions are very demanding in the range of skills and knowledge tested in the time available. The test requires students not merely to construe the meaning of parts of the text but to identify stylistic features or patterns, to respond to nuances of characterisation or tone and to interpret the effect of figurative language or other literary techniques.

Group members agreed that they would need to bear in mind the position of the multiple choice section of the paper and the time pressures on the AP candidates when they came to comparing candidate scripts and aligning the grades.

The group then compared the A2 June 2004 papers and Section 2 of the May 2004 AP paper. It was agreed that there was a clear match between the requirements of the questions in GCE A level Paper 4 and the first question in Section 2 of the AP paper, both requiring comparative analysis of pairs of texts. Group members debated whether the level of demand was affected by the fact that the GCE A level question is open book and the AP question based on an unseen text. It was noted that this could be offset by the requirements of the unseen comparative question in the GCE A level Paper 6. The second question in the AP paper exploring character and relationships is similar in demand to the first question in GCE A level Paper 5. It was agreed that although the focus on linguistic frameworks and analysis in the second two questions in GCE A level Paper 5 is not an explicit feature of the AP examination, AP candidates would nonetheless be expected to demonstrate the same skills during the course of the AP examination. The analytical comparison component of GCE A

level Paper 6 was similar in its requirements both to GCE A level Paper 4 and the third question on the AP paper. However, group members thought that the AP question was potentially more demanding, both conceptually and in the breadth of reading most AP candidates would have done in order to prepare for this question. On the other hand, AP candidates are not required to review and evaluate their own writing techniques.

In summary, group members found that, in line with the comparison of assessment objectives, candidates are required to demonstrate broadly similar skills in each examination. Both require candidates to analyse literary texts at a high level of sophistication and both require the production of well written essays. Skills of synthesis and evaluation are called for in both.

The group agreed that the greater emphasis of the AP examination on the analysis of unfamiliar texts and the differences in time allowed for the respective examinations would need to be taken into account when considering candidate evidence and the alignment of the grades.

Comparing levels of attainment – candidate evidence

Group members began by discussing and clarifying the grading procedures for each examination. It was noted that in the GCE A level, raw marks for each unit are converted on to a six point scale (Grades A to E) and in the AP raw marks for each section of the examination are converted on to the following five point scale:

Grade 5: Extremely well qualified
Grade 4: Well qualified
Grade 3: Qualified
Grade 2: Possibly qualified
Grade 1: No recommendation

The selection of candidate evidence for this exercise was complicated by the fact that an AP grade is a result of a procedure which combines the results of the multiple choice tests in Section 1 of the paper with the essays scores for each of the three questions in Section 2. It is possible, therefore, that, for example, a Grade 5 could be the result of a good performance on the multiple choice section and less good performance on the essays in the free response section.

While it was clearly not possible for group members to look at candidate evidence for the multiple choice tests, they acknowledged that the sophisticated ability to read and analyse texts required by the mc questions was nevertheless examined in the GCE A level. They also agreed they would need to return to the place of the multiple choice when considering the alignment of the grades.

From their preparatory work, group members were aware that the AP essay questions were scored according to a 9 point scale, divided into 5 bands and very similar to the GCE AL five band marking scheme.

On the basis of the candidate scripts examined for the preparatory work, group members were of the view that AP essays scoring 8 and 9, and possibly 7, represented a comparable level of attainment to GCE A level Grade A scripts and that those scoring 4 were probably

comparable to a Grade E. The AP examiner noted that AP essays scoring 1, 2 or 3 on this 9 point scale were usually less competent both in language and in content than the sample GCE A level Grade E scripts provided.

In order to test these initial views, the group examined a new set of AP essay scripts at each of the points on the AP marking scale from 3 to 9. The AQA Principal Examiner led the exercise, allocating a GCE A level grade to each script.

The majority of the essays selected were from the May 2005 paper in response to Section 2, Question 1 requiring candidates to compare and contrast two poems, taking into consideration the poetic techniques used by the poet. One essay was in response to Question 2, requiring the candidate to write an essay showing how the author uses literary devices to achieve her purpose. A summary of the results of the exercise is provided in Table 5.

Table 5: Applying A level grades to AP scripts

AP score	AL Grade	Comments
3	Just below Grade E	The candidate conducted a simple comparison, identifying some rhetorical devices, but fairly basic.
4	Top of Grade E, possibly Grade D	A consistently structured essay in comparative mode throughout; better attempt at interpretation than the Score 3; lacks sustained use of examples to support his point. Impressive though to read text and structure such an essay in 40 minutes.
5	Grade D	Clearly a better performance than the previous script, better use of poetic techniques and more exemplification, but overall the argument is weaker. Taking into account the time constraints, could be between a high E and low C, so all agreed Grade D would be appropriate.
6	Top of C	The essay demonstrates an elegance of expression and sensitivity to character and relationships, but fails to use evidence and examples from the text.
7	Good A	Good comparison of the poems, effective analysis of rhyme as a literary device, good discussion of characterisation and confidence to move between form and content.
8	Good A	Very tightly structured essay, good understanding of genre and form, insightful and mature writing.
9	Good A	Perceptive, well written paper, skilled close reading, good use of examples and excellent control of language.

A general comment on all the papers made by the HE representative should be noted here. While both marking schemes contain requirements for accuracy and clarity of written expression, it is noticeable that these qualities are more highly valued in the AP examination where there are fewer errors of written expression, even in the lower scoring essays, than in the GCE A level scripts.

Aligning the grades

It was noted that for the purposes of admission to an American university with advanced standing a Grade 3 was the lowest acceptable grade and was generally considered the passing grade. It was agreed therefore that Grades 1 and 2 of the AP should not be included in this exercise.

The alignment exercise therefore required matching six essay scores (4 to 9) to the three AP Grades (3 to 5) to the five AL grades (E to A).

While the awarding procedures make it difficult to link the 9 point marking scheme directly to the AP Grades 3 to 5, it was agreed that candidates achieving a 7, 8 or 9 on their essay scores are normally awarded a Grade 5 overall; those achieving a 5 or a 6 on their essay scores are normally awarded a Grade 4 and those achieving a 4 for their essay are normally awarded a Grade 3.

Taking the results from the grading exercise from the previous section, the alignment and allocation of UCAS Tariff Points appeared as in Table 6 below.

Table 6: Initial allocation of UCAS Tariff Points

AP Score	AP grade	AL Grade	TPs
9	5	A	120
8			
7			
6	4	Top of C	80
5		Grade D	60
4	3	Top of Grade E, possibly Grade D	40

However, the group agreed that the AP Grade 3 had been shown to span the GCE A level Grade E and D. It was agreed that an allocation of 60 UCAS Tariff Points could be justified for AP Grade 3 when the demands of the multiple choice tests, the time constraints and the fact that all examination texts are unseen are taken into account. Based on similar arguments, and the quality of the scripts examined for essay score 6, it was agreed that AP Grade 4 should be allocated an extra 10 points above the 80 allocated for GCE A level Grade C. The group did not feel that the AP Grade 4 merited an additional 20 points as had been agreed for Grade 3 since the demands of the multiple choice tests had already been taken into account, and, at this higher level, one would expect candidates to be able to cope better with the specific demands of the examination.

The final recommended allocation of UCAS Tariff Points is set out in Table 7.

Table 7: The English Group's recommended allocation of UCAS Tariff Points

A level grade	**AP grade**	**Tariff Points**
A	5	120
B		100
	4	90
C		80
D	3	60
		50
E		40

4.3 THE ECONOMICS GROUP

Introduction

The AP Economics Course Description booklet contains the topic descriptions and sample questions for both Microeconomics and Macroeconomics. The A level Chief Examiner had mapped the topics from both these examinations against the A level Economics specification. It was agreed that both Micro and Macroeconomics needed to be the subject of scrutiny by the expert group in this exercise. The results of the different tasks are therefore presented for Micro and Macroeconomics separately, as appropriate, below.

Comparing aims and objectives

The aims of the two awards are specified in different ways. Those of the GCE A level are presented according to the requirements of the regulatory body overseeing national syllabuses and the Edexcel specification states:

> *"The aims of this specification are to encourage students to:*
> - *develop an understanding of economics concepts and theories through a critical consideration of current economic issues, problems and institutions that affect everyday life*
> - *apply economic concepts and theories in a range of contexts and to appreciate their value and limitations in explaining real-world phenomena*
> - *analyse, explain and evaluate the strengths and weaknesses of the market economy and the role of government within it*
> - *participate effectively in society as citizens, producers and consumers"*

The aims of the AP given in the course description are:

> *"to provide the students with a learning experience equivalent to that obtained in a typical college introductory microeconomics or macroeconomics course"*

Although described rather differently, the aims were felt to be broadly similar with the exception that the AP aims are focused on preparing students for further study, whereas the A level aims are broader, A level is not designed solely for entry to HE. This difference in emphasis is illustrated in the descriptions given by the two examiners at the expert group meeting. The AP, it was reported, aims to test a student's discipline-specific knowledge, skills and proficiencies with the purpose of providing universities with information about the level of knowledge and proficiency that students bring. It was noted that the A level aims to provide a student with a methodology to confront economic concerns.

Structure of the awards

As with all GCE A levels, the Edexcel specification comprises six modules, three to be completed for the AS award normally in the first year of the course, with a further three required for the full A level qualification normally at the end of the second year.

Each AP course is intended to be delivered in one semester culminating in a single examination. Most AP Economics candidates take either Micro or Macroeconomics, about a quarter of them take both examinations.

Determining size – comparison of study hours

As would be expected from the above, each AP subject was found to be rather smaller than the A level in terms of study hours. AS is about 120 hours and A2 about 120-150 hours making a total of 240-270 hours for AL; each APP subject is about 70-75 hours.

Hence, in terms of study hours, each AP economics subject is just over 60% the size of AS, or 26-31% of AL.

Determining size – comparison of content/breadth and depth of coverage

Before being able to discuss the size of the body of content to be covered it was necessary to air some of the fundamental differences between the two examinations. This was done in order to be clear that the discussion of size in this context deliberately excluded how that content was dealt with.

Major differences between the specifications were noted with regard to how content was treated. The AP examination does not ask students to work with primary documentation/data. The AP is intended to test theoretical knowledge with some application to 'specific' but not situations drawn from actual real world examples.

Additionally, A level candidates are expected to work out the nature of a specific situation from information given and then work within that, whereas AP students are given the specific situation. Essentially, the AP tests do not allow candidates to show what they can do to the same extent that the A level examination does. AP questions, even the constructed response questions, are scaffolded in such a way that the specific situations are given as are the tools to work with. In this way, the APP tests are designed to enable candidates performing at the lower levels to show what they can do. This design also enables more reliable marking. In A level, candidates are expected to work out the nature of the situation, justify it, construct the argument and decide what tools are needed. The guidance given to AP candidates in their examination questions meant that the group was unable to infer if a candidate could respond to similar questions when not guided.

The AP examination allows limited scope for candidates to demonstrate higher order analytical skills or evaluative skills. The purpose of the AP examination, to provide a basis of knowledge that will allow advanced standing or credit in HE, means that these higher order skills are not required to be tested. The group was agreed that AP candidates may well possess these skills but that they could not be inferred as they were not demonstrated in the examination performance.

The mapping provided by the A level examiner was used to discuss the content covered in each of the examinations and additions were made by the AP examiner. The revised mapping may be found at Appendix 3. The size of the content areas unique to one or other of the two awards was determined roughly by the length of teaching time and the conclusions reached were:

- Content of Microeconomics

    - Microeconomics takes roughly the length of time of 2 AS units + 2 A2 units – 40 hours, which is more or less equivalent to the time for 1 AS unit + 2 A2 units, that is ***½ AL.***

    - Another way of looking at this included the weighting of the A level units; each of the units involved here is worth 15%, giving 60% of the A level, less the 40 hours teaching time, approximately ***45% of AL***.

- Content of Macroeconomics

    - There were larger differences here with the AP programme dealing with the Financial Sector and the optional A level unit dealing with Economic Development. Nevertheless, the content of Microeconomics takes roughly the length of time of 1 AS unit + 2 A2 units, that is ***½ AL.***

    - Another way of looking at this included the weighting of the A level units; 20%, 15% and 20% in this case, giving ***55% of AL***.

The difference between the two judgements about size (26-31% of the A level in terms of study hours and approximately ½ the A level in terms of content) for each of the AP economics subjects was felt to be explained by the additional depth required in the A level, noted above, due to the fundamental differences between the two awards in their purposes and nature of testing.

Comparing examination requirements

The differences in the two examinations were again stressed, particularly with regard to the intended assessment objectives:

Assessment objective	**% AS**	**%A2**	**%AL**	**% AP**
Knowledge	30	20	25	33.3
Application	30	20	25	33.3
Analysis*	20	30	25	33.3
Evaluation	20	30	25	0

Note*
In the AP programme, the definition of analysis is any two-step process and the AP examination does not include the higher order analytical skills included in the AL; hence the figures above for analysis are not directly comparable. In addition, it was emphasised again that the AP examination does not test candidates' ability to apply skills to data drawn from real exemplars.

Examples of both multiple choice (Part I of the AP examination) and constructed response questions (Part II of the APP examination) in the Course description of Microeconomics May 2005, May 2006 ('Acorn book') were discussed. Again, the scaffolding to help the students was noted, as was the small number of marks available for the constructed response questions (usually in the range 8 – 12 marks). The scaffolding and small mark ranges were noted as

being very helpful to examiners in achieving reliability but left relatively little room for candidates to show their higher order skills or for discrimination between candidates.

The results of identifying the opportunities to demonstrate the different skills in these AP Microeconomics example questions are:

AO	Multiple choice questions							Constructed response questions		
	2	**4**	**14**	**15**	**16**	**19**	**23**	**1**	**2**	**3**
1	1	1	1	1	1	1	1	1	1	1
2	1	1		1	1	1	1	1		1
3	½				½	1	1	1	1	1
4										

From this sample of questions, ignoring any weighting, it shows, crudely, that 42% of the skills being tested in these ten questions were knowledge, 33.3% application, 25% analysis and 0% evaluation.

By comparison, the A level multiple choice questions each required justification by the candidate for the response option chosen and there was little scaffolding to help in the 'essay' questions. It was felt that a candidate presenting with the profile of skills above might attain a Grade C at A level. Grade A would not be available with these demonstrated skills but a Grade B at AS would be possible. It was agreed that AP candidates may well possess the skills required to achieve Grades A and B at A level but that this could not be inferred from the skills demonstrated in the AP examination.

The lack of opportunity to demonstrate the higher order skills of analysis and evaluation was felt to constitute a 'huge' difference in demand between the two awards.

In order to quantify that difference, candidate performance as demonstrated on the AP questions was 'applied' to questions from the A level 2004 examination; the maximum marks available for such demonstrated performance were found to be:

	Max mark available to AL	**Max mark available to AP**	
Unit 1 Q1-8	20	20/20	34/40 = 85%
Unit 1 Q9	20	14/20	
Unit 2 Q2	40	26/40	26/40 = 65%
Unit 4 Q1-10	20	10.5/14 (some aspects not covered)	35.5/54 = 66%
Unit 4 Q11	40	25/40	
Unit 5a Q1	60	18/30 (some aspects not covered)	18/30 = 60%

Comparing levels of attainment – candidate scripts

Candidate scripts from the AP 2005 Microeconomics examination were discussed. Their performance in AL was estimated and the results for two candidates, '5' and '3' were:

	AP Grade	MC score	CR Q1 score (max 12)	CR Q2 score (max 9)	CR Q3 score (max 8)
Candidate '5'	5	55.25	12 A2 content, limited application and	9 similar to supported choice question at AS,	8 optional A2 content which is heavily

			analysis, ***Grade B at A2***	***Grade A at AS***	weighted (40%) to evaluation, max 60% of available A2 marks, ***Grade B at A2***
Candidate '3'	3	33.75	4 ***scrape Grade E at A2***	3 ***scrape Grade E at AS***	4 economic knowledge demonstrated, ***Grade C/D borderline at A2***

Aligning the grades

Given the differences in depth of coverage and opportunities to meet the A level assessment objectives between the AP and A level subjects the expert group was not able to make a direct alignment between AP grade and AL grade. Two indirect approaches were taken.

First, UCAS Tariff Points were allocated to the levels of attainment estimated in the section above and then a size factor applied to the Tariff Points. A size factor of 0.6 was applied, from the discussion of content, rather than study hours.

From the evidence for the **Grade 5** APP candidate:

Grade	UCAS Tariff Points	Size from content (60%)	UCAS Tariff Points
B at A2	100	0.6	60
B at A2	100	0.6	60
A at AS	60	0.6	36
Total			156/3 = ***52***

From the evidence for the **Grade 3** APP candidate:

Grade	UCAS Tariff Points	Size from content (60%)	UCAS Tariff Points
E at A2	40	0.6	24
C/D at A2	70	0.6	42
E at AS	20	0.6	12
Total			78/3 = ***26***

Secondly, UCAS Tariff Points were allocated to the potential opportunities to meet the A level assessment objectives estimated above and then a size factor applied to the Tariff Points. The same size factor of 0.6 was applied here.

Assuming that AP candidates can demonstrate 75% of the Assessment objectives (knowledge, application, analysis), then we might claim that 75% of the Tariff Points are available, i.e. 75% of 120 Tariff Points = 90 Tariff Points. If we then apply the 60% size factor, 60% of 90 Tariff Points = 54 Tariff Points. Thus ***54*** Tariff Points would be the maximum available.

This exercise suggested the following allocation of Tariff Points for Microeconomics:

AP grade 5 52-54 Tariff Points
AP grade 3 26 Tariff Points

There were then suggestions for rounding these allocations to 60 and 30 respectively.

A number of concerns was expressed:

- Rounding 52 or 54 Tariff Points for Grade 5 to 60 Tariff Points
- Rounding 26 Tariff Points to 30 Tariff Points
- Adding together Tariff Points for Micro and Macroeconomics gives 120 Tariff Points to candidate with two Grade 5s (equivalent to A at A level). This was assuaged, in part, by taking on board that admissions tutors do not add Tariff Points from, essentially AS
- 26 Tariff Points too low for Grade 3

Macroeconomics

Most of the discussion summarised above related to Microeconomics; it was agreed that the same 'formula' should be applied to Macroeconomics. Although there was less of a match in content, it was felt that the similarities of approach to the content that did match (see Appendix 3) were sufficient to justify this. The same differences between AP course and A level with regard to the assessment objectives apply here as to Microeconomics; in fact the A level has a slightly heavier evaluation weight here with 2 A2 and 1 AS units in the overlapping content.

Subsequent work on AP Economics

Following the meeting of the Expert Group, further work was undertaken on the two AP economics syllabuses and examinations by the facilitator of the expert group and Dr Hayward. In particular, they examined the extent to which AP questions were assessing the higher order skills of analysis and evaluation. This was undertaken by mapping question stems to descriptions of the skills derived from Bloom's taxonomy. The outcomes of this work were as follows:

- The volume of the AP syllabuses was smaller than a GCE AS specification
- The assessment model of the AP examinations in economics was more akin to the GCE AS model
- The AP examination did not, because of its purposes and design, set out to assess evaluation skills and more complex analytical skills
- The AP could, however, develop a good theoretical understanding of key topics and ideas in micro and macro-economics as would be expected of a first year college survey course.

Applying the standard benchmarking procedures to the figures derived for volume and demand for the AP course produces an allocation of UCAS Tariff Points that seemed too low given the fourth bullet point above, i.e. this allocation did not really signal the utility of AP micro- and macro-economics for the purposes of progression to UK Higher Education institutions. It is important to remember here that the benchmarking procedure is only intended to inform, rather than determine, the judgement of the expert group.

Following a further set of discussions it was agreed that the AP micro- and macroeconomics (and by extension other one semester Advanced Placement courses) should be allocated the following UCAS Tariff Points:

Grade 5 – 50 UCAS Tariff Points
Grade 4 – 35 UCAS Tariff Points
Grade 3 – 20 UCAS Tariff Points

This allocation was agreed by the Expert Group.

4.4 THE AP PHYSICS PROGRAMME

Subsequent to the meeting of the expert groups, it was brought to the attention of Dr Hayward that one of the subject areas, physics, while offered as two one-semester courses, was more like chemistry in its design than micro-and macro-economics. Consequently, the suggested allocation of the UCAS Tariff Points to the one semester courses could under estimate the value of the AP physics courses for the purposes of progression to Higher Education in the UK. Given current concern about higher education recruitment in the physical sciences in the UK it was felt that this should be investigated further. To this end Dr Mark Dixon, the OCR Chair of Examiners for GCE A level physics was asked to map the qualifications and make recommendations as to their relative size and demand. His mapping is included in Appendix 3.

Physics B in the AP course is designed for science majors other than physics and engineering, and is non-calculus based. It does, however, require a year of previous study of physics. Physics C, designed for physics and engineering majors, is calculus based and requires a year of previous study of physics. In the view of Dr Dixon taken together the content of the two AP syllabuses covered about 5/6 of the content of the GCE A level syllabuses. The assessment, especially of the Physics C, was, he felt, generally more demanding than the A level. This suggests that taken together the AP Physics B and C are comparable to the GCE A level. However, the differences between the Physics B and C syllabuses could lead to a very complex allocation of UCAS Tariff Points. It was suggested that Physics B and C should be taken as half subjects comparable to the AP in chemistry. This would suggest an allocation of UCAS Tariff Points as follows to both AP physics syllabuses:

Grade 5 – 60 UCAS Tariff Points
Grade 4 – 45 UCAS Tariff Points
Grade 3 – 30 UCAS Tariff Points

SECTION 5: ALLOCATING UCAS TARIFF POINTS TO THE AP PROGRAMME

It had become apparent from the work of the Subject Groups, and the subsequent analysis of the Physics courses, that the distinction between AP courses based on their length (one semester or two semesters) in practice reflects a division between those courses which:

- Build on pre-existing knowledge developed through prior high school experience – typically the two semester programmes such as English and Chemistry
- Introduce new subject material – typically the one semester courses such as micro and macro economics.

It was clear that this distinction is evident both in terms of the length of the courses and in the level of demand of their assessment and has therefore been taken into account in the allocation of UCAS Tariff Points. The one exception to this division is the AP Physics B and C courses. These are each a one semester AP course. However, as shown in Section 4.4, if taken together these two courses are broadly comparable to GCE A level Physics in size and demand.

Given the above analysis, it was decided for the purposes of allocating UCAS Tariff Points to classify the AP programmes into two groups as is shown in the table below:

- Group A consists of those subjects which build upon pre-existing knowledge developed in high school and where the level of assessment demand is consequently higher than in the Group B subjects

- Group B subjects are characterized as being more akin to "survey"[2] courses, introducing learners to new subject content and assessed with a slightly lower level of demand than the group A subjects.

Table 8 shows the classification of the AP subjects into these two groups.

[2] A type of course that is offered in the first or second year of a four year degree programme that introduces a learner to a broad range of concepts from either a discipline or a field.

Table 8: Classification of AP subjects

Group A subjects	Group B subjects
Biology Calculus AB Calculus BC Chemistry Physics (as half courses B and C) English Literature and Composition English Language and Composition French Language French Literature German Language Italian Language and Culture Latin Literature Latin: Vergil Spanish Language Spanish Literature *NOTE: Foreign Language and Literature AP courses typically require 4 prior semesters of study.* European History United States History World History	Art History Studio Art (Drawing Portfolio) Studio Art (2-D Design Portfolio) Studio Art (3-D Design Portfolio) Computer Science A (a one-term course) Computer Science AB (a two-term course) Environmental Science Government and Politics: Comparative Government and Politics: United States Human Geography Macroeconomics Microeconomics Music Theory Psychology Statistics

Recommended allocation of UCAS Tariff Points

Achievement in Group A subjects would attract the following UCAS Tariff Points (halved for physics)

Grade 5 –120 UCAS Tariff Points
Grade 4 – 90 UCAS Tariff Points
Grade 3 – 60 UCAS Tariff Points

Achievement in Group B subjects would attract the following UCAS Tariff Points

Grade 5 – 50 UCAS Tariff Points
Grade 4 – 35 UCAS Tariff Points
Grade 3 – 20 UCAS Tariff Points

This recommended allocation of UCAS Tariff Points is conditional upon whether the UCAS systems can deal with this complexity.

APPENDIX 1

CURRICULA VITAE

OCR Chair of Examiners for Chemistry	Helen Eccles
AP Examiner for Chemistry	John Gelder
HE representative for Chemistry	Hugh Cartwright
AQA Principal Examiner for English	Andy Archibald
AP Senior Examiner for English	Eric Wimmers
HE representative for English	Sam Durrant
Edexcel Chief Examiner for Economics	Quintin Brewer
AP Examiner for Economics	James Spellicy
HE representative for Economics	John Lane

Maryke Helen Eccles

Academic Qualifications
Ph.D. University of Cambridge
B.Sc. ARCS Imperial College of Science and Technology, University of London
PGCE University of Cambridge
Fellow, Royal Society of Chemistry
Associate Fellow, Clare College Cambridge
Fellow, Cambridge Philosophical Society

Present Employment

- Assistant Director, Quality and Standards Division, OCR.

Recent Previous Experience

- Chair of Examiners, Science, OCR.
  This post carried responsibility for the quality and standards of all general qualifications in science subjects.
- Hills Road Sixth Form College, Cambridge
  At this leading sixth form college Dr Eccles was an A-level Chemistry Teacher.
- Homerton College, University of Cambridge
  Dr Eccles taught on the B.Ed course, the Science Conversion Course PGCE and the JYA course.

Education

Dr Eccles received her education at Loughborough High School and Queen Anne's Grammar School for Girls, York.

John Gelder

To follow

Dr. Hugh Cartwright

B.Sc. (1969), Ph.D. (1972) University of East Anglia, U.K. “A Free Electron Model for Spherical Systems.” Supervisor Dr. Roger Grinter.

September 1973 - August 1984. Postdoctoral Fellow, Senior Laboratory Instructor, Assistant Professor, Chemistry Department, University of Victoria, Canada.

August 1984 - present: Laboratory Officer, Departmental Safety Officer, Chemistry Department, Oxford University, U.K. Chemistry Fellow and Tutor in Physical Chemistry, St. Anne’s College, Oxford. Lecturer, Temporary Senior Chemistry Tutor and Chemistry Admissions Tutor, Oriel College, Oxford. Organizer of Oxford Chemistry Open Days and Oxford Chemistry Information Day. U.K. Coordinator, Hands-on Science European Project. U.K. representative, CoLoS International Consortium. Editorial Board member, The Chemical Educator. Wide-ranging research interests in Applications of Artificial Intelligence in Science, intelligent assessment of medical data, safety in Chemistry, Chemical Education. Author or editor of four books and more than sixty research publications.

ANDY ARCHIBALD

EXAMINING:

Principal Examiner – Unit 2 AQA GCE English Lang. & Lit. Spec B.

1996-2001 Assistant Examiner/ Team Leader AQA Eng. Lang & Lit. (0623)

2001- Assistant Examiner UCLES English Lang/1 O level

TEACHING EXPERIENCE:

2000-01 Royal Russell School, Croydon: A Level/ GCSE English

1993-99 Trinity School, Croydon: A Level/ GCSE English

1991-92 University of Houston: BA. English classes.

1978-91 Dulwich College, London SE21: Drama/ A Level / GCSE English.

1974-77 Whitgift School, Croydon: English teacher (A level).

TEFL/ ESL

1997-99 Language Solutions, London: EFL Business Teaching.

1995-00 Hong Kong Summer Language School, Bromley : Centre Head.

1973-74 Executive Language School, Tokyo: EFL Teacher.

EDUCATION:

1999-00 University College, London: M.A.Phonetics.

1992-93 University of Sussex: M.A. English Lit.

1991-92 University of Houston: M.A. Eng.Lit. /Creative Writing.

1989-89 University of Houston: B.A. Drama classes

1988-88 Marble Arch Institute, London: RSA Certificate: TEFL.

1969-73 Loughborough University: B.Ed.(Hons.2:1) Eng.Lit/Phys.Ed./Ed

Eric Wimmers

To follow

Name:	**Samuel Robin Durrant**
Nationality:	British
Date of Birth:	9th February, 1970.
Current Position	Lecturer in English, Leeds University (since September 2000)

Qualifications

1995-99:	PhD. in English, QUEEN'S UNIVERSITY, Kingston, Ontario, Canada.
1993-95:	M.A. in English, UNIVERSITY OF MISSOURI-COLUMBIA, Columbia, Missouri, USA.
1992:	RSA/UCLES TEFL Certificate, Bell School of Languages, Norwich.
1989-92:	B.A. in English and American Literature (Joint Honours), Manchester University, England. *First Class.*

Relevant Past Employment

1995-99	Teaching Assistant, Queen's University, Canada.
1993-95	Graduate Instructor, University of Missouri-Columbia
1992-93	TEFL Teacher, Vibo Valentia, Italy
1989	TEFL Teacher, Kathmandu, Nepal

Professional Responsibilities

Lecturer in English, Leeds University
Tutor for Undergraduate Admissions, Leeds University
Reader for various academic journals and publishers
Book Editor of *Moving Worlds*, Associate Editor of *Postcolonial Text*

QUINTIN BREWER

EDUCATION

Sept. 1959 – July 1964	The Challoner School, Finchley, London
Sept. 1964 – July 1966	Finchley Grammar School, London

QUALIFICATIONS

B.Ed: University of Birmingham (1971)
Postgraduate Diploma in Economic Analysis: University of Kent (1978)
M.A.: Open University (1990)

RELEVANT EMPLOYMENT HISTORY

Sept. 2004 - present — **North London Collegiate School, Edgware, London**

- Assistant Teacher of Economics
- A Level (Edexcel)
- I.B. Economics

Sept. 1996 – July 2004 — **The Alice Ottley School, Upper Tything, Worcester**

- Deputy Head (Curriculum)
- Responsible for timetable, assessment and reporting
- Undertook complete review of curriculum and implemented major changes
- Teaching A Level Economics; A Level Business Studies; Nuffield GCSE Business and Economics (which I introduced)

Sept. 1987 – July 1996 — **Malvern Girls College, Avenue Road, Worcester**

- Head of Economics and Curriculum Director (from Sept 1999)
- Overall responsibility for curriculum
- Introduced Economics into the curriculum
- Teaching A Level Economics; GCSE Business and Economics

Sept. 1971 – July 1977 And Sept. 1978 – July 1987 — **Tunbridge Wells Grammar School, Southfield Road, Tunbridge Wells, Kent.**
Head of Economics; Head of Year 11; Public Examinations Officer; Co-ordinator of General Studies.

EXAMINING AND OTHER EXPERIENCE

June 1983	**Assistant Examiner, A Level Economics**
Sept. 1984 – 1993	**Reviser, A Level Economics**
1986 - 1999	**Srutineer, GCSE Economics**
April 1993	**Principal Examiner, A Level Economics (Edexcel)**
Sept. 2004 – present	**Chief Examiner, A Level Economics (Edexcel)**
2001	**Member of QCA Expert Group on AEA Economics**
2003	**Member of QCA Expert Group for IB Economics**

James Spellicy

To follow

DR JOHN S LANE

EDUCATION

1962 – 1965	Bachelor of Social Science (Mathematics, Economics, Econometrics) First Class Honours Birmingham Chamber of Commerce Price Birmingham University
1965 – 1969	PhD (Economics) Dissertation: *Optimal Economic Growth and Population Policy* Advisor: Professor Kenneth J Arrow Stanford University Financed by Stanford University Fellowships

APPOINTMENTS

1971 – present	London School of Economics faculty – since 2002 responsible for undergraduate admissions ,general course tutor, MSc admissions from SE Asia.

Leaves of absence:

1993 Autumn	Visitor, New Economic School, CEMI, Russian Academy of Science.
1979 Summer	Professor, University of Canterbury, New Zealand.
1977 – 1978	Associate Professor, University of California, San Diego.
1977 Summer	Academic Visitor, Department of Managerial Economics and Decision Sciences, Northwestern University Graduate School of Management, Chicago.
1976-1977	Associate Professor, State University of New York.
1976 Spring	Research Associate, Cowles Foundation, Yale University.
1974 – 1975	Assistant Professor/Research Associate, Wisconsin University, USA. Co-principal Advisor on the project *Dynamic World Economic Systems Models* financed by the Department of Health, Education and Welfare.
1969 – 1971	Assistant Professor, Queen's University, Canada.
1966 Summer	Celanese Corporation, New York and Montreal. Responsible for Input-Output Project.

TEACHING EXPERIENCE

1. Mathematical Economics.

2. Micro-economic analysis; strategic dimensions.

3. Advanced Mathematical Economics; recursive economic systems, economic decentralisation.

APPENDIX 2

EVIDENCE EXAMINED FOR THE AP PROGRAMME AND GCE A LEVEL

Course descriptions and specifications

AP Programme Course Descriptions

Chemistry
English Literature and Composition
Economics
Physics

GCE A level specifications

OCR GCE A Level Chemistry
AQA GCE A Level English Language and Literature, Specification A, 2004
Edexcel GCE A Level Economics
OCR GCE A Level Physics, Specification A

Examination papers and marking schemes

AP Programme documents

Chemistry Released Examinations and marking schemes,
English Literature and Composition Released Examinations and marking schemes, 2004
Economics Released Examinations and marking schemes,
Physics Released Examinations and marking schemes,

GCE A level documents

OCR Chemistry examination papers and marking schemes, June 2003 and 2004
AQA English examination papers and marking schemes, June 2003 and 2004
Edexcel Economics examination papers and marking schemes, June 2003 and 2004

Candidate material

A selection of candidate scripts at relevant grade boundaries, from all of the above examinations was available for scrutiny.

APPENDIX 3

The following appendices are very long documents. Readers wishing to review them are invited to contact UCAS who will be happy to provide them.

3.1 Mapping AP Chemistry to OCR GCE A Level Chemistry

3.2 Mapping AP English Literature and Composition to AQA GCE A Level English Language and Literature

3.3 Mapping AP Economics to Edexcel GCE A Level Economics

3.4 Mapping AP Physics to OCR GCE A Level Physics