

[CCHE Agenda](#)  
January 14, 2000  
Colorado History Museum  
Denver, Colorado  
10:00 a.m.

I. Approval of Minutes

II. Reports

- A. [Chair's Report](#) – Bracken
- B. [Commissioners' Reports](#)
- C. Advisory Committee Reports

III. Consent Items

None

IV. Action Items

- A. [Higher Education Study Report \(HB 1289\)](#) -- Adkins (30 minutes)
- B. [Ph.D. in Cognitive Science at the University of Colorado at Boulder](#) -- Kieft (15 minutes)

V. Items for Discussion and Possible Action

- A. [Consumer Guide](#) -- Adkins (10 minutes)

VI. Written Reports for Possible Discussion

- A. [Report on Out-of-State Instruction](#) -- Grieder
- B. [Concept Paper](#):
  - (1) [Bachelor of Arts \(B.A.\) in Astronomy](#) at the University of Colorado at Boulder -- Kuepper

Colorado Commission on Higher Education (CCHE)  
January 14, 2000  
Agenda Item II, A

**TOPIC: CHAIR'S REPORT**

**PREPARED BY: ALEXANDER E. BRACKEN**

This item will be a regular monthly discussion of items that he feels will be of interest to the Commission.

Colorado Commission on Higher Education (CCHE)  
January 14, 2000  
Agenda Item II, B

**TOPIC: COMMISSIONERS' REPORT**

**PREPARED BY: COMMISSIONERS**

This item provides an opportunity for Commissioners to report on their activities of the past month.

**TOPIC: HIGHER EDUCATION STUDY REPORT (H.B. 99-1289)**

**PREPARED BY: JEANNE ADKINS**

## **I. SUMMARY**

In the last legislative session, the General Assembly directed the Colorado Commission on Higher Education to conduct a two-year study of various elements of the state's higher education system, evaluate the findings of those studies, and make recommendations in specific areas to the legislature where change should be implemented. The first phase of HB99-1289 is completed.

## **II. BACKGROUND**

Although elements of HB99-1289 have been addressed with annual reports to the General Assembly and the Commission no general overview of higher education has been conducted for more than a decade.

Commission staff have spent the past six months analyzing in-depth the following issues:

- Duplication of efforts in reporting and information gathering in higher education and curriculum, program and degree duplication ([Chapter 1A](#) and [Chapter 1B](#));
- Administrative cost analysis of governing boards in Colorado ([Chapter 2](#));
- A 10-year analysis of the total budget expenditures of higher education institutions ([Chapter 3](#));
- A 10-year historical analysis of total higher education revenues from all sources ([Chapter 4](#));
- A 10-year analysis of tuition and fee growth in Colorado compared to other states ([Chapter 5](#));
- An examination of graduate education delivery and graduate education funding in Colorado ([Chapter 6](#));
- An examination of remedial instruction in higher education and its costs to Colorado ([Chapter 7](#));
- A study of the impacts of the state's personnel system on higher education ([Chapter 8](#));
- An assessment of the state's higher education enrollment, retention and transfer policies ([Chapter 9](#));
- An analysis of the Quality Indicator System results for the current year ([Chapter 10](#));
- An analysis of capital maintenance expenditures and needs on the state's 28 campuses ([Chapter 11](#));
- An assessment of the impact of distance learning on higher education today and the potential for this learning modality in the future ([Chapter 12](#));
- An historical analysis and peer comparison of faculty salaries in higher education in Colorado ([Chapter 13A](#) and [Chapter 13B](#)).

Specific issues addressed in the first study year focus on many of the same questions addressed by the Commission in developing a new Higher Education Master Plan:

1. Whether the current system is meeting the marketplace needs of Colorado's
2. Whether the state's system is accessible to all potential qualified students, regardless of income;
3. Whether the CCHE admission standards meet current needs, and
4. Whether resources allocated to institutions – financial, personnel and capital – are being used efficiently and prudently to meet the needs of students.

Two other issues are addressed at the Legislature's direction in the first-year overview:

1. An analysis of the impacts of the 1992-voter-passed Taxpayers Bill of Rights amendment to Colorado's Constitution

on higher education and

2. An assessment of a voucher program as a funding option for higher education.

### **III. STAFF RECOMMENDATION**

**Commission staff recommends the commission refer the first-year analyses and recommendations to the General Assembly as required by CRS 23-1-110.5 with favorable approval.**

### **Appendix A**

### **STATUTORY AUTHORITY**

C.R.S. 23-1-110.5 (b) The general assembly therefore concludes that it would be beneficial to conduct a study to reexamine higher education performance in the state and determine whether changes and improvements may be made in the delivery of higher education services to more effectively serve Colorado's citizens throughout the state.

# Executive Summary

## Chapter 1A – Reporting, Management Duplication

The Colorado Commission on Higher Education examined three areas of reporting in this study:

- State government statutory directives that mandate reporting by all state agencies, including higher education governing boards and institutions;
- Reporting requirements affecting higher education governing board and institutions required by statute and CCHE policy; and
- Reporting resulting from federal government mandates and national oversight agency requirements, including reporting for federally required non-governmental agency accreditation of institutions, colleges and degree programs.

### Key Findings

- The Budget Data Book reporting system now required of governing boards and institutions should be re-examined to determine whether another reporting format – perhaps one used for an existing financial report – would provide a more accurate total financial picture to policymakers. This review should incorporate pending General Accounting Standards Board requirements (GASB).
- Since the level of reporting is limited, legislators should consider repealing personnel reporting requirements for higher education and incorporating the information into financial reporting requirements.
- The General Assembly should repeal the requirement for a 5-year capital facilities plan. Information presented currently is insufficient to evaluate the validity of the projects proposed beyond the year in which the institution seeks funding and program plans are submitted. CCHE capital and academic policies should be further consolidated to eliminate dated elements.
- CCHE and institutions should cooperatively examine current federal data requests to ensure accuracy common definitions and elimination of duplicated information gathering.

### An Overview

Existing and new federal government higher education administrative reporting requirements are significant and growing. Most result from the federal Higher Education Act. Federal reporting requirements are often a condition of student aid or research grant funding.

On the state side, higher education institutions have various reporting obligations as a part of the state's general government statutes. CCHE's statutes also affect higher education reporting requirements. Higher education institutions have a number of statutory administrative reporting obligations to other state governmental agencies. Those requirements for higher education are about the same or less than expected of other state agencies. State agencies higher education interfaces with regularly include the Department of Personnel/General Support Services, Department of Education, Office of State Planning and Budgeting, Legislative State Auditor's Office and Joint Budget Committee and the House and Senate Education Committees.

### General Financial Reporting

Higher education has significantly greater financial autonomy than other agencies. The General Assembly appropriates funds for higher education institutions in the form of a lump sum for each of the six governing boards and Auraria, based on the distribution formula.

The Colorado Financial Reporting System (COFRS) contains financial information about all state government agencies, including higher education governing boards and institutions. However, higher education information is summary level data. The more limited higher education reporting resulted from a 1990 state controller decision. Under the State Controller's statute (CRS 24-30-202-27), institutions were included on COFRS but were required to provide only data and reports readily accessible or generated by institutions. Higher education summary level data meets minimum statutory requirements.

One group interested in seeing more financial information from higher education is the Governmental Accounting Standard Board (GASB). Currently, higher education institutions and the Controller's Office are working on a plan for addressing the GASB 34 requirements. By statute (CRS 24-30-202-27), the controller must consult with CCHE before adopting, amending, or repealing rules affecting or creating reporting requirements applicable to Colorado institutions of higher education. T

requirements will add to the administrative reporting workload for higher education unless the new requirements are a replacement for existing reports.

## **Information Technology**

All state agencies, except higher education, must annually make requests for new information technology to the Commission on Information Management (IMC) as a part of the annual Information Management Action Plans (IMAP). Higher education information technology projects are reviewed by CCHE and submitted to the capital construction committee for appropriation. The IMC receives little or no information from higher education. Of the \$480 million in new capital construction requests from higher education institutions to CCHE, approximately \$53 million are information technology related. At CCHE's request, IM staff accompanied CCHE staff to review technology project requests for the FY00-01 program year. The input was valuable in determining the validity of several projects and recommendations for project modifications were made as a result. This cooperative effort should be expanded.

## **General Requirements**

Higher education is subject to many of the same administrative reporting requirements as other state agencies. While the Department of Personnel's statutes mandate that all state agencies and institutions of higher education keep data in the personnel system's database (EMPL) updated, overall, the higher education data validity is limited. This reporting requirement should be repealed, and the information generated should be incorporated into the overall financial reporting requirements.

Overall, higher education has either fewer general statutory requirements than other state agencies or has been exempted from standard reporting requirements. However, although institutions have significant budget flexibility, they must accommodate mandated indirect costs assigned by the legislature, the fleet management costs, any benefit increases mandated for classified staff and all salary survey costs within whatever annual appropriation is made.

## **CCHE Statutory Review**

CCHE's relationship with the state's public institutions has developed over the past three decades. Created in 1965, the commission functions as the General Assembly's coordinating agency for higher education institutions.

Duties and powers delegated to the commission apply to all state-supported institutions of higher education, including, but not limited to, all post-secondary institutions supported fully or partially by state funds, junior colleges and community college extension programs of the state-supported universities and colleges, local district colleges and area vocational schools.

CCHE-required reporting includes: Information management and database reports submitted to the General Assembly and federal agencies; budgetary information submitted to the JBC and OSPB; capital program plans and master planning to prioritize the higher education requests, which are submitted to the Capital Development Committee, and academic requirements for degree approval, discontinuance of degrees and creation of new programs.

## **CCHE Finance, Budget Role**

The legislature appropriates funds for higher education institutions in a lump sum for each of the six governing boards and for the Auraria Higher Education Center pursuant to CCHE's formulas. Statutes require that CCHE, in conjunction with the governing boards, develop the Department of Higher Education's funding request and determine the funding formulas for general fund and cash funds. Higher education institutions also have the authority to roll-forward unexpended funds to the future fiscal year statutorily.

One of the most significant reporting requirements affecting higher education institutions is CCHE's budget data books. The budget data books represent a significant reporting requirement. While the data books provide a wealth of data on the institutions, the information reflects only state-appropriated funds or 49% of the total higher education expenditures in the state. Further, the financial information is in a different format from other financial information maintained by the institutions. CCHE should work with the institutions and the GASB panel to develop a new, more inclusive financial reporting system.

## **Capital Project Review**

CCHE is charged with review and approval of campus master plans and program plans for all higher education capital construction projects. Statutory obligations include:

construction projects. Statutory obligations include:

- Coordinate higher education capital construction budgeting and five-year capital improvements and programming, CRS 23-1-106(6)(7).
- After consultation with the institutions and governing boards, develop and recommend to the governor and the general assembly statewide plans for higher education in the state, CRS 23-1-108(1)(a).
- Approve higher education lease-purchases, CRS 23-1-106(8).

The commission works with the State Buildings Division and OSPB to ensure that higher education funding requests are consistent with state policies, plans, priorities, and to ensure cost effectiveness in space allocations. The requirement for five-year construction/renovation/maintenance plan should be repealed. These plans change significantly from year to year depending on resources available and are not valid planning documents. They reflect "wish lists," not real needs.

CCHE's capital assets program planning is a prerequisite to higher education capital construction budget recommendations.

## **Student Assistance**

Significant state and federal reporting evolves from the state need-based and merit financial aid reporting and federal financial aid and student loan funding. Efforts to streamline this reporting on both a state and federal level are being explored.

## **Information Research**

To respond to legislative and executive branch inquiries, CCHE requests data from governing boards and institutions. Higher education institution personnel report that they feel as if they are constantly responding to new and old requests for information. A coordinated effort is underway by the commission to examine all data requests and ensure common definitions and coordinate reporting efforts are employed wherever possible.

Resources should be focused on ensuring the accuracy of data over time.

## **Federal Reporting**

Like most institutions nationally, Colorado's institutions spend significant personnel resources maintaining databases and producing data reports for the federal government.

In 1993 the General Assembly directed the Colorado Legislative Council to review federal laws affecting Colorado higher education. Numerous federal laws and regulations affect higher education institutions and additional requirements have been imposed since that review.

Most result from the Higher Education Act, which regulates teacher quality, institutional aid, student financial assistance and federal loan programs, international education programs, graduate and post-secondary improvement programs, and various studies and data collection efforts on a diverse list of policy issues affecting higher education.

The National Center for Education Statistics (NCES) IPEDS surveys represent one of the more significant federal data collection requirements affecting higher education. CCHE coordinates the data gathering from Colorado institutions of higher education.

Reporting also is required by the Federal Depository Library Program, the U.S. Information Agency (for exchange students), and the Department of Agriculture (for animal welfare for research institutions), to cite just a few.

Besides a laundry list of general federal reporting requirements ranging from reports to the IRS and Selective Services, specific higher education institutions are often required, as a condition of federal aid, to submit detailed information about program activities that are duplicated by state and other oversight agencies (i.e., accreditation agencies). It is important to note accreditation is a non-governmental reporting function. Although some federal laws require accreditation, no state law or policy does. Nevertheless, these requirements add to the reporting burdens placed on higher education.

Common complaints about the federal reporting among institutions are that they are overly burdensome, often redundant, overlapping, conflicting and often unrelated to higher education's purpose.



# Executive Summary

## Chapter 1B – Curriculum Duplication

During the course of conducting the research necessary to fulfill the study requirements of HB 99-1289 the Colorado Commission on Higher Education (CCHE) examined Colorado's public institutions of higher education to determine unnecessary duplication of degree programs exists. This chapter examines:

- The programs offered by Colorado institutions and how areas of potential duplication can be identified.
- How new programs are approved and existing programs are reviewed for continuation or elimination, and whether that review system is effective.
- How Colorado's degree programs compare with other states with comparable public higher education systems.

### An Overview

CCHE holds the statutory authority for approving new degree programs. It is responsible for ensuring that degree programs are consistent with statutory roles and missions, meet market demand, and do not create unnecessary duplication.

Degree programs, to a great extent, exemplify an institution's identity and strengths. For this reason, degree approval and continuation are of great importance to Colorado's institutions of higher learning. New degree programs are generally initiated by interested faculty members who must take into consideration market demand as well as the quality of the educational experience and the availability of a similar educational experience in other institutions.

In accordance with the General Assembly's 1985 directives, CCHE is charged with ensuring access to public education while guarding against unnecessary duplication. Access is interpreted to mean broad access to undergraduate degree programs, selective access to masters' degree programs, and limited access to doctoral programs. The statutory role and mission of each institution further provides boundaries to differentiate institutions by the type and breadth of degree offerings.

Fiscal accountability requires continual attention by CCHE to the relevancy of degree programs to the role and mission of each institution. It also requires CCHE's sensitivity to duplication within the system overall.

### Analysis

The number of approved degree programs has actually declined from FY 1985 to FY 1999, from 1,780 to 1,110. Associate degrees offered by Colorado's community colleges have declined from 861 to 319; bachelors' degrees have declined from 503 to 403 and masters' degrees have declined from 279 to 250. Doctoral degrees declined from 137 in 1985 to 122 and climbed back to 135 in 1999.

### CCHE Oversight Process

CCHE has two policies that address degree program duplication:

- *Policies and Procedures for the Approval of New Academic Degree Programs*, and
- *Discontinuance of Low-Demand Academic Degree Programs* (the "Discontinuance Policy").

Degree approval consists of six criteria, including unnecessary duplication with other degree programs. Analysis of duplication is not limited solely to the public system of higher education, but includes an examination of the offerings of private colleges and universities, as well as reciprocity agreements Colorado has negotiated with other states.

Under its Discontinuance Policy, CCHE has established minimum graduation benchmarks – ten graduates for a bachelors' level degree program, three graduates per year for a masters' level program, and one graduate per doctoral degree program. Degree programs that operate below these are subject first to governing board review. Governing boards must restructure the program to improve graduation rates or discontinue the program within three years from the date the program is identified as a low-demand program. In April 1989, CCHE discontinued 110 degree programs. In April 2000, CCHE again will discontinue low-performing degree programs that the governing boards have not discontinued voluntarily.

### Key Findings

- General education courses comprise a common set of foundation courses that are essential to the education of all undergraduates. A common core curriculum exists within all of Colorado's community colleges, which provide students with mobility and access to a broad array of baccalaureate programs at Colorado's four-year institutions with minimal loss of credit to the student.
- No common general education curriculum exists among the four-year institutions.
- At the baccalaureate level, program duplication appears to be appropriately monitored by CCHE's Discontinuance Policy, although there is evidence that some undue program duplication may exist within the Denver metro area.
- At the graduate level, some evidence of duplication exists. It is recommended that this be examined more extensively in the second phase of the HB 99-1289 study, which focuses on governance issues.
- Compared with other states, Colorado has a relatively large number of public institutions with the authority to grant doctoral degrees.
- At the doctoral level, the duplication between the three primary research universities appears appropriate and sustainable. However, duplication at the doctoral level may not be cost-effective for the State. Future doctoral degree proposals should be weighed in terms of their potential for excellence, external research funding, and national leadership in the field.

## **Key Recommendations**

- CCHE should conduct an annual audit of degree programs, including an examination of printed and web-based college catalogs.
- CCHE should develop a method to represent enrollment shifts within degree program areas using dynamic modeling for use in assessing whether duplication exists when considering new degree proposals.
- In response to the Governors' education agenda which challenges public higher education institutions to increase the reputation of their graduates, as well as ensure they have advanced critical thinking skills, communication skills, problem-solving skills and advanced skills in the use of technology, CCHE should examine the creation of a common general education curriculum emphasizing these four critical elements, including developing common course numbers for all institutions.
- Since an exam administered at the conclusion of the sophomore year may provide an effective means to measure the quality of the general education portion of the curriculum, CCHE should evaluate several such tests and implement the one that provides the greatest educational value and valid results.
- Colorado should provide incentives to encourage the development of new courses in science, math, and engineering, and expand access to these programs through electronic delivery.

# **Executive Summary**

## **Chapter 2 – Governing Board, Central and System Costs**

This chapter examines the costs of governing board, central administration, and system services provided by the governing boards and systems.

Determination of the actual costs required more analysis than legislators or CCHE staff initially contemplated. Because systems vary in organizational structure and because the way each system identifies, quantifies, and charges institutions for central services differs dramatically, CCHE was faced with the challenge of making comparisons between similar services treated in entirely different ways.

### **Key Findings**

- Because of the great variances among data elements, no conclusions about actual costs could be drawn. The General Assembly should consider the value of directing all governing boards and systems to implement a single common system of data collection and auditing to address the question of actual costs in a meaningful manner.
- Misunderstanding about costs could be eliminated if the reporting of such costs identified and explained the purpose of all charge backs and Indirect Cost Recovery funds.
- Increased costs of governing boards and increased centralization of systems did not result in stabilized or reduced administrative costs for institutions.

# Executive Summary

## Chapter 3 - Higher Education Revenues

The Colorado Commission on Higher Education analyzed financial statements of Colorado public institutions of higher education from 1989 through 1999. Sources of revenue were detailed. Changes in both current and constant dollars were reported to see trends in revenue sources. Summaries for governing boards help to describe institutional variations.

### Key Findings

- Revenues to Colorado public institutions of higher education increased by 85% between 1989 and 1999, from \$1.4 billion to \$2.6 billion. State general fund appropriations increased at a higher rate between 1994 and 1999 than for the previous period.
- As a percentage of total revenue, state general fund appropriations declined as a share of total revenue throughout the period. Student tuition and fees rose as a share during the first five years, but declined during the second half of the decade. Federal funds increased significantly over the period.
- The CU system received 31% of state general fund appropriations and 43% of student tuition and fees. The State Board of Agriculture (CSU system) accounted for 23% of appropriations and 24% of tuition and fees.
- State general fund appropriations were the largest single share of revenue for three governing boards. Federal funds were the largest at two and tuition the largest at one.

### Overview

Revenue to Colorado's public institutions of higher education increased by \$1.2 billion during the past decade, from \$1.4 billion in 1989 to \$2.6 billion in 1999. Colorado state general fund appropriations rose by nearly 50% over the period, from \$431 million to \$646 million. Student tuition and fees more than doubled in ten years, rising from \$305 million to \$610 million. Federal grants and contracts nearly tripled, from \$218 million to \$639 million.

State general fund appropriations rose at nearly twice the rate in the second half of the 1989-1999 period. Student tuition and fees, however, increased faster during the first part of the decade. State general fund appropriations fell as a share of revenue from 30% to less than 25% over the period. Tuition and fee revenue increased and declined. Federal funds jumped from 15% to 24%.

In inflation-adjusted (constant dollars) terms, total revenue to higher education increased by 6% between 1989 and 1999, jumped by 21% over the next five-year period. State general fund appropriation declined by 5% for the first five years, increased by 10% in the next five. Student tuition and fees rose by 32% in the first and 7% in the next five years. The General Assembly sought to "buy-down" tuition increases during the second period with increased general fund support. Even adjusting for inflation, federal grants and contracts doubled over the period.

The University of Colorado System generated \$1.2 billion in FY 1999. CSU was the next largest at \$639 million. The community college system generated \$370 million in receipts and the state colleges received \$195 million. The two independent boards received the smallest amounts with the University of Northern Colorado at \$122 million and the Colorado School of Mines at about \$86 million.

CU and CSU received almost 55% of state general fund appropriations. Community colleges collected 25% of that source. Nearly two-thirds of student tuition and fees were generated by the CU and CSU system. Over 84% of federal grants and contracts went to CU and CSU.

State of Colorado general funds were the largest revenue source for the community colleges, state colleges and UNC. Federal funds were the largest for CU and CSU. Student tuition and fees were the largest single source for the Colorado School of Mines. State appropriations amounted to 22% of the total receipts for CSM, 23% for CSU and less than 17% for the CU system. State appropriations accounted for 44% of revenue for the community colleges, 36% for state colleges and about 34% for UNC. Nearly 30% of CU's total revenue and 25% of CSU's was generated from federal funds. Student tuition and fee receipts were less than 31% for any school, averaging only 23% of the total revenue. They ranged from a high of 31% for CSM and 30% for UNC, to 22.9% for both CSU and the community colleges and 21.6% for CU.

# Executive Summary

## Chapter 4 - Higher Education Total Costs, Budget

The Colorado Commission on Higher Education analyzed the financial statements (both audited and unaudited) of Colorado public institutions of higher education from FY 1989 through FY 1999. The commission tracked these outlays in current (unadjusted for inflation) and constant (adjusted for inflation) dollars by category of expenditure (i.e., instruction). Summaries for governing boards help to describe institutional variations.

### Key Findings

- Total expenditures to all Colorado public institutions of higher education increased from \$1.4 billion to \$2.6 billion (85%) from FY 1989 to FY 1999. As a percentage of total outlays, state appropriations (unrestricted funds) increased 47%, from \$876 million to \$1.3 billion over the ten year period.
- Instruction outlays, as a percentage of all higher education expenditures, declined over the past 10 years. Research expenditures share of total outlays rose over the period. General campus administrative cost categories remained constant from FY 1989 to FY 1999.
- Over the past decade, state general fund support of Colorado public higher education as a proportion of total funding has decreased. Higher education is funded through unrestricted funds (e.g., general and cash funds appropriated by the General Assembly and restricted funds (i.e., federal or donor funds for specific purposes). In FY 1989 unrestricted funds comprised 79 percent of all outlays. Restricted funds were about 21 percent of total expenditures. In FY 1999, restricted funds increased to 31.5 percent of total outlays while general funds decreased to 68.5 percent.
- The CU system spent 43% of total instruction higher education expenditures and 68.5% of all research spending in FY 1999. The CSU system accounted for 19% of all instructional spending and 26% of all research outlays.

### Overview

Colorado public institutions of higher education expenditures increased by \$1.2 billion or 86% during the past decade, from \$1.4 billion in FY 1989 to \$2.6 billion in FY 1999. Within that amount, Long Bill higher education appropriations rose by \$420 million, or 47%, from \$876 million to \$1.3 billion. Total higher education expenditures increased by 6.3% over the decade. Appropriated expenditures (general fund) increased at a rate of 3.9%

Instruction expenditures rose by 73% from \$464 million in FY 1989 to \$803 million in FY 1999. Research outlays more than doubled in ten years, rising from \$164 million to \$383 million. Scholarships and fellowships expenditures more than tripled from \$78.7 million to \$328 million. Auxiliary operating expenditures doubled from \$122 million to \$250.5 million over the decade.

Two significant adjustments occurred during the period that significantly affected

the expenditure levels. First, the CU and CSU systems assumed responsibility for administering the federal direct loan to students program in FY 1995, increasing the scholarships and fellowships expenditure category by approximately \$170 million. Second, University Hospital associated with the University of Colorado Health Sciences Center was reorganized in statute as a private enterprise in 1990. This resulted in a reduction of \$122 million in the CU system's hospital and expenditures.

Instruction expenditures made up 30.6% of the total state higher education expenditures in FY 1999, down from 32.7% in 1989. The second largest expenditure category -- research -- was up from 11.6% of total expenditures in FY 1989 to 14.6% in FY 1999. Scholarships and fellowships outlays made up 12.5% of the total expenditures in FY 1999, followed by auxiliary operating expenditures at 9.5% for FY 1999. Higher education general administrative functions (public service, academic support, student services, institutional support, and operations and maintenance of plant) made up 27% of the total expenditures throughout the decade.

In inflation-adjusted (constant dollars) terms, total higher education expenditures to higher education increased 6.5% between 1989 and 1994. These expenditures (constant dollars) jumped 20.5% from 1995 to 1999. Instruction expenditures increased by 14% for the first five years (1989 to 1994) and increased by 5.6% in the last five years (1995-1999). Research rose by 34% in

the first five years and 20.6% in the past five years. Auxiliary operating expenditures increased 42% over the past decade.

The CU system spent \$1.2 billion (46 %) of the total higher education budget in FY 1999. CSU was next, spending \$647 million (25%) of the total budget. The community college system expended \$361 million (14%) and the State College system spent \$196 million (8%). The University of Northern Colorado spent \$123.7 million (5%) and the Colorado School of Mines spent about \$85.5 million (3%) of all higher education funds.

Combined, CU and CSU had 62% of the total instructional expenditures in FY 1999. The community colleges spent 21% of all instruction funds statewide. Nearly two-thirds of all auxiliary operating outlays were spent by the CU and CSU systems. They also accounted for 94% of all state higher education research expenditures and 74% of all scholarship and fellowship spending.

# Executive Summary

## Chapter 5 – Ten-Year Resident Tuition, Fee Growth

House Bill 99-1289 seeks answers to the historical growth of tuition and fees in Colorado compared to other states in an effort to determine whether Colorado's level of state funding, the level of tuition funding and fees are comparable.

### Key Findings

- In the 1994-99 timeframe tuition increases have been fairly uniform, rising by about 13% to 15%.
- Ten-year increases reflect the impact of tuition buy-down policies -- a \$20 million investment by the General Assembly -- and 1992 voter-imposed TABOR revenue limits.
- The ten-year resident tuition and fee increases ranged from a high of 80% at the University of Colorado at Denver to a low of 40% at the University of Colorado at Boulder.
- Tuition growth exceeded personal income growth from 1988-1993 for all institutional categories.
- In the 1993-98 period, tuition growth was considerably below that of personal income growth.
- Personal income growth was stable compared to inflation over the decade. However, tuition growth pre-TABOR exceeded inflation and declined post-TABOR.

### Tuition Growth

Percentage changes for the most recent five-year period (Fiscal Years 1994 – 1999) for four-year institutions range from a low of 13% at Mesa to a high of 47% for students at Metro. The average increase for two-year institutions was 13% in the same five-year timeframe, while the state's research institution tuition increases were 15% at the University of Colorado Boulder (UCB), 13% at Colorado State University (CSU), and 13% at the Colorado School of Mines (CSM).

The ten-year increases reflect a much greater range. For example, the two-year colleges across the state saw average increases between 1988 and 1998 of 62%. Metropolitan State College (Metro) (67%), the University of Colorado at Colorado Springs (UCCS) (70%) and the University of Colorado-Denver (UCD) (71%) exceeded that percentage of increase.

In FY 1998-99, resident tuition ranged from \$4,508 for the Colorado School of Mines to \$1,320 for the community college system, which has a uniform tuition rate. Tuition for the other two research institutions was \$2,444 for the University of Colorado at Boulder and \$2,286 for Colorado State University.

### Fee History

During the past decade mandatory fees for all students -- within the TABOR revenue limits -- have generally doubled across the board. Fees more than tripled at UCD (203%), although fees at UCD are among the lowest in the state. Fees rose by 172% at UCCS, and 150% at UNC.

Examples of mandatory fees include technology fees, student organization fees, and intramural athletic fees.

Western State recorded the smallest gain in fees at 45% for the decade. However, Western had the highest fee total of \$468 per full-time equivalent (FTE) in FY 1989. Its FY99 fees of \$680 are the second highest.

Trinidad State Junior College (-70.3%) Lamar Community College (-33.9%) and Western State (-15.5%) actually show declines in these fees in the five-year period of FY 94-99.

During these past five years, however, that growth rate greatly diminished, with the exception of the community college system. Between 1994 and 1999, the range in the growth rate for fees ranged from a high of 62% for the community colleges to a low of 28% for CSU and the University of Northern Colorado. Adams State recorded a 58% gain in fees during the past five years, followed by the University of Southern Colorado (45%) and Fort Lewis College (44%).

### Total Tuition, Fees

A more accurate picture of higher education costs to students in Colorado combines both tuition and fees together.

Over the past decade, resident tuition and fee increases ranged from a high of 80% at the University of Colorado at Denver to a low of 40% for the University of Colorado at Boulder. The community college system reported an increase of 68% for a decade in resident tuition and fees. Tuition and fee changes during the past five years were more restrained.

## **Inflation-Adjusted Growth**

In constant dollars (inflation-adjusted), resident tuition growth ranged from a 15.8% increase at Metro to a 0.5% decline at the Colorado School of Mines between 1989 and 1999. During the past five years, however, resident tuition fell in constant dollars for every institution in the state except for Metro.

Five institutions reported decreases in combined tuition and fees during the past five years. These decreases, adjusted for inflation, were:

- UCB -- 7.1%;
- CSM -- 1.5%
- CSU -- 0.9%
- UNC -- 0.8%
- UCCS -- 5.7%

## **National, Colorado Comparisons**

Resident tuition and required fees at Colorado public institutions of higher education rose at a slower rate compared with other states during the past decade.

Tuition and fee increases over the ten-year period 1989-1999 show Colorado schools rank 43<sup>rd</sup> of 46 in terms of percent increase in tuition and fees. (Information is not available for four states).

## **Community Colleges Higher**

Colorado's community colleges, however, reported increases in tuition and fees that exceeded national gains. In the ten-year period, Colorado community college tuition and fee increases on a percentage basis were exceeded by only seven other states.

In FY 1999, Colorado's resident tuition of \$3,038 was 18% below the national average of \$3,686. Ten years earlier,

Colorado resident tuition and fees were five percent above the national average.

Colorado placed 46<sup>th</sup> in its increase in college and state university growth for resident undergraduate tuition and fees over the past decade. Nationwide, resident undergraduate tuition and required fees increases averaged 96% between 1989 and 1999 for the college and state university sector, they rose by 67% in Colorado.

In FY 1999 college tuition in Colorado for this sector totaled \$2,238 -- about 23% below the national average of \$2,900. Community colleges and state universities were about 10% below the national average in resident undergraduate tuition and fees in 1989.

## **Community College Trends**

Tuition and fee increases for Colorado's community colleges were strikingly different than for the other institutions of higher education.

The state is at the national average in both non-resident college tuition growth and FY 1999 totals for non-resident tuition and fees for its college and state university system.



## Policy Questions Raised

As a result of the CCHE pricing study, scheduled for completion in 2000, the Commission and the General Assembly should look at the relationship between tuition, fees and total educational costs.

Current information available fails to address some significant questions:

- Is there a relationship between tuition and quality?
- Should tuition remain relatively low at the research and four-year institutions?
- Is tuition at the community colleges too high?
- Should tuition be based more on the ability to pay?
- Should fees be made more uniform?
- Should fees reflect different costs? That is, should fees be more of the same across the board for all students? Or, should fees be pegged to user costs and reflect different rates for different activities.

# **Executive Summary**

## **Chapter 6 – Graduate Program Delivery, Funding**

House Bill 99-1289 directed CCHE to examine how Colorado funds graduate programs compared with other states. This chapter looks at graduate program funding and delivery and also examines the accessibility of graduate programs to Colorado citizens.

### **Major Findings**

- In 1999, Colorado public institutions of higher education offered 390 graduate programs, including five first professional (post-baccalaureate degrees such as law), 250 masters' and 135 doctoral programs.
- Almost half of these were delivered by Colorado's two largest research institutions: Colorado State University (26%) and the University of Colorado at Boulder (22%). Eight other institutions offered the remainder.
- At the masters' level, the number of engineering degree programs surpassed the number of education degree programs in 1998, 39 and 36 programs, respectively.
- At the doctoral level, the life sciences (i.e., Biology) is the leading group of doctoral degree programs with 25 programs. Engineering programs are in second place among doctoral programs with 21 programs, followed by programs in the physical sciences with 16 programs.
- In 1998-99, a total of 136,228 full time equivalent (FTE) students were enrolled at Colorado colleges and universities at both the graduate and undergraduate level. Of these, 91% (123,565) were undergraduate students and 9% (12,663) were graduate students. These numbers include both resident and non-resident students.
- Approximately 78 % of all graduate students at Colorado's four-year institutions are Colorado residents. The institutions were not able to provide data on whether these students originated as Colorado residents or became Colorado residents once being accepted into a graduate program. Institutions report the residency of graduate degree-seekers at the time of enrollment, not at the time of application.
- Because of the way budgets are prepared in Colorado, institutions do not distinguish between funding for graduate programs and funding for undergraduate programs. There has been no separate funding of graduate education for more than 10 years in this state. Funding of graduate programs is part of the overall funding of institutions, not a separate and distinct allocation within that funding. It is therefore not possible to compare the level of funding for graduate programs in Colorado with funding levels for graduate programs in other states.
- Allocation of resources in support of graduate programs is done by each governing board and institution within the context of mission and annual operating budgets. There is no uniformity in the method of allocation across governing boards. Each governing board's graduate programs have differing cost requirements (faculty salaries, research, etc.)
- From the available data, CCHE has determined that general fund support for graduate students at four-year institutions is significantly greater than undergraduate support.
- In addition to general fund support, graduate programs receive significant resources from federal and private research grant programs.
- Graduate-level degree programs and courses are provided to Colorado citizens through three mechanisms: (1) on-campus, state-funded degree programs; (2) off-campus, state-funded degree programs; and (3) cash-funded Extended Studies degree programs and courses.
- State-funded, off-campus programs were created by the Colorado General Assembly in 1985 under HB 1187 as a means of providing greater opportunities for rural Coloradans to access higher education, including graduate education.
- In 1972, out of concerns about duplication of effort, inter-institutional competition and access, the Colorado General Assembly created the off-campus Extended Studies Program.
- Approximately 9,226 students took courses off-campus through the Extended Studies Program in 1998-99. These courses included both graduate and undergraduate courses. Extended Studies programs are all cash-funded; that is, they do not receive a budget allocation from general funds.

### **Recommendations**

- CCHE should consider changing the budget process to require governing boards and institutions to break out expenditures for graduate and undergraduate education.

# Executive Summary

## Chapter 7 -- Remedial Education: Too much, not enough?

Few issues in American higher education have attracted as much attention in recent years as college-level remediation. In many ways, remediation stands at the center of the academic challenges that confront state policy makers, campus faculty and administrators.

If a student is inadequately prepared to enroll in college level courses, then it is difficult for these students to complete a baccalaureate degree program in four years.

This paper addresses the central question posed by the General Assembly concerning remedial education: How much time and resources are devoted toward remedial education and is it needed? Remedial policy approaches used in other states are described. The chapter profiles the Colorado student who enrolls in one or more remedial classes and concludes with key findings and recommended practices.

### Importance to the Legislature

From the legislative perspective, the key policy issues include cost, quality and institutional mission. The state's bill for college level remediation in the current year is \$19.8 million. A key question, therefore, concerns how much of higher education's resource base is spent to provide remedial services to students under-prepared to enter college or who lack the skills necessary to complete their degree programs. Should the state support remedial education or should it be a cash enterprise? Which institutions should offer it?

HB99-1289 seeks to determine the scope of remedial education being offered in the higher education system, concern about the rising numbers of students needing remediation. This issue has been a long-term concern of legislative policy-makers in Colorado, the Commission on Higher Education, which has monitored remedial instruction for a decade, and nationally.

A 1995 Colorado Community Colleges and Occupational Education System (CCCOES) study established the first, system-wide demographic profile of remedial students. A 1997 survey conducted by the State Higher Education Executive Officers (SHEEO) provides comprehensive information on state activities in remedial education.

By legislative directive, not all institutions may provide remedial instruction in Colorado. Institutions providing these services include the 15 community colleges, Adams State College and Mesa State College. Approximately 60 percent of Colorado institutions provide remedial courses in reading, writing and mathematics.

No statewide policy requires entering freshmen students to take placement tests, although by board policy, all full-time students enrolling in Colorado community colleges are required to take a placement test.

### Key Findings

Colorado's typical remedial education student profile is a Colorado resident, white, young and cannot meet CCHE statewide admission standards. Minority students are over-represented in this group.

- Eighteen percent of all students enrolled in Colorado's community colleges took one or more remedial classes in 1997-98.
- The highest proportions of 1997-98 remedial students are found in urban/suburban community colleges.
- Remedial education serves two different markets – the younger recently graduated high school student who lacks necessary math and writing skills and the older student returning to college who needs refresher courses.
- While 29 percent of community college students are under 22 years old, 43 percent of students enrolled in remedial courses are under 22. Students between 22 and 35 are proportionally represented in remedial classes. Students over 35 are enrolled in remedial classes at higher rates.
- Of the 18,000 students enrolled in remedial education in 1997-98, approximately six thousand (5,714) were recent high

- Of the 18,000 students enrolled in remedial education in 1997-98, approximately six thousand (3,714) were recent high school graduates, i.e., graduated from high school in 1996 or 1997.
- Colorado high school graduates account for a greater percentage of students enrolled in remedial education in 1997-98 than previously. In 1997-98, 48 percent were recent high school graduates compared to 42 percent in 1993-94.
- Approximately 92 percent of students in remedial classes are classed as in-state students.
- Sixty percent of the remedial students enrolled in only one remedial course while 23 percent enrolled in two remedial courses. Fifteen percent enrolled in three or more remedial courses.

A recent six-year study analyzed remedial student performance and non-remedial student performance (Karl Van Etten, 1997). After completing the remedial courses, the remedial students perform as well as non-remedial students in college-level math and English courses.

## Policy Recommendations

Currently, Colorado supports remedial education at \$19.8 million. More than 18,000 students were taking remedial instruction in the state. Community colleges are partnering with local school districts, providing feedback to the high schools on recent high school graduates who need remedial assistance to help identify weaknesses in K-12 curricula and improve learning for all students.

1. Colorado students are most likely to require remedial math instruction. By improving high school students' mathematics skills, Colorado can potentially decrease the number of remedial students and the dollars spent to support remedial education.
2. Colorado should require students whose placement tests indicate a need for remediation to take those courses early by limiting the length of time students are eligible to qualify for financial aid and state support.
3. A uniform way of identifying remedial enrollments should be created and CCHE should track the academic progress of students who require remediation before beginning college level study to identify effective practices, including those delivered by technology.
4. Effective remediation is an indicator of the system performance; thus Colorado should incorporate this measure into its Quality Indicator System.

# Executive Summary

## Chapter 8 – Higher Education Personnel System Impacts

This chapter addresses the policy question: What is the impact of the state personnel system on higher education institutions and does it affect the system's flexibility and accountability?

Analyses were performed which examined the (1) growth in the various personnel groups, (2) growth in salaries of a personnel group, (3) makeup of the state classified workforce and its impact on higher education, (4) flexibility that institutions possess relative to managing the state classified workforce, (5) competitive issues faced by institutions relative to the state classified workforce, and (6) benefits paid to the various employee groups.

### Key Findings and Recommendations

- The number of higher education classified staff consisting primarily of clerical, skilled craft and maintenance workers increased slightly or (in the case of clerical) declined overall.
- The job classes that saw the largest average salary increases over the past ten years were regular exempt faculty followed by exempt staff (executive/administrative) and professional (non-faculty).
- Based on institutionally reported data, classified staff had the highest average benefit increases.
- Classified staff average salary increases kept pace with or exceeded inflation. The increases still were lower than the average increases for all classified state employees. Department of Personnel figures show that for the past five years (1995-1999), state classified staff increases averaged about 16.81 percent. The primary reason for the lower increases in higher education is that institutional classified staff are primarily clerical and crafts employees who (like their counterparts in general government) have received lower salary survey increases over the past five years.
- Classified staff average salary increases were higher than average faculty increases over five years (1995-1999).
- Exempt staff had the highest increases in numbers of new staff and average salary increases.
- When compared with general government classified staff, higher education data shows that the number of classified employees in higher education increased at about half the rate of general state government.
- The Department of Personnel found that the average salary of state classified personnel in general government was about \$3,467 a month versus \$2,700 a month in higher education. This reflects the fact that many of the classified staff in higher education are in the lower salary levels (i.e., clerical/secretarial) of state government.
- With few exceptions (CU system and Trustees of State Colleges), most of the state's institutions pay their classified staff at or slightly below the Department of Personnel's estimated annual average salary (\$2,700/month and \$32,400/year) for classified staff in higher education. The reasons for this is that institutions probably are using the flexibility afforded them in hiring new staff at lower starting salaries or that classified staff in higher education have less time in service than classified staff in the general government agencies.
- Classified staff present an added issue to higher education since they require that administrators operate a separate personnel system for what represents about one-fourth of the total higher education personnel. State personnel rules are complex and require a great deal of effort by higher education officials, thus increasing overall costs of higher education personnel functions.
- Data from Colorado Northeastern Junior College indicate that converting former local district staff to state classified positions resulted in increased personnel costs.
- Higher education officials believe that classified staff annual salary and merit increases limit their ability to effectively manage institutional personnel budgets.
- State Personnel system rules requiring higher education institutions to hire state classified staff on federal grants present an additional issue for colleges and universities when the grant term expires. Institutions cannot terminate the classified staff when the grant expires and the classified staff have bumping rights for other similar classified positions in the institution.
- Data provided by the governing boards shows that classified staff salaries as a percentage of total institutional personnel budgets statewide have declined over the past five years.

# Executive Summary

## Chapter 9 – Enrollment, Retention, Transfer, and Graduation

CCHE studied the admission and enrollment dynamics in Colorado public higher education institutions. The primary purpose of the study was to determine whether Colorado enrollment patterns vary from national trends, how long Colorado students take to complete an undergraduate degree, the relationship between retention rates and graduation rates, the differences in graduation rates among the various fields of study, and what barriers, if any, exist to timely degree completion.

### An Overview

Recognizing the connection between a strong state economy and the educational level of Colorado citizens, the legislative leadership has challenged higher education to increase the percentage of high school graduates attending college. Strategies for accomplishment of this goal include enlarging institutional capacity, offering more degree programs at more sites, and increasing student retention and graduation rates. The latter provides the opportunity to use state resources more efficiently. Policy makers need to consider this strategy when making decisions about enrollment growth, capital construction, and funding of the higher education system.

Enrollment trends may also demonstrate to institutions that students are having trouble realizing their degree goals. Graduation rates show potential students which institutions will give them the greatest probability of success. Further, the general public gauges institutional quality and success in part on the level of graduation that each achieves.

### Analysis

The Commission's study focuses on degree-seeking students. The two entry points into higher education, admission and transfer, and the two exit points, attrition and graduation, are examined. Applying the definitions used in the ACT national study enabled CCHE to compare Colorado enrollment patterns to national patterns.

### Key Findings

- Colorado's retention rates are fairly comparable to retention rates in other states. The national data show that 71% of four-year college freshmen and 53% of community college freshmen return for the sophomore year.
- Seventy percent of freshmen enrolled at Colorado's public colleges enrolled at the same institution the following fall. This has increased from the 1995 freshmen-to-sophomore retention rate of 68%. Most importantly, Colorado's retention rate is improving while the national average is flat.
- National studies indicate that the students who are most likely to persist and graduate from college are those who had the strongest academic records. Colorado colleges with high freshmen admission standards, i.e., those colleges that admit freshmen with the strongest pre-college academic records, have the highest retention rates in the system. Colorado's selective admission institutions (CSU and UCB) have higher retention rates than selective institutions in other states.
- Students who complete the core curriculum at a Colorado community college graduate from four-year institutions at considerably higher rates than community college students who transfer less than the required 33 credit hours. Colorado community college students who complete an Associate of Arts (AA) or an Associate of Science (AS) lose no credits when transferring and enter the four-year colleges as juniors. Community college students with vocational certificates or degrees often lose credit for the remedial and vocational courses that fulfill the degree requirements.
- Transfer policies and transcript evaluation practices in Colorado do not appear to delay graduation of transfer students. Poor advising -- both pre-transfer and post-transfer -- may negatively impact a transfer student's ability to graduate in a timely manner.
- Four-year college students who declare a major in their sophomore year are more likely to graduate in four years than those who have not.
- The pattern of change in student retention rates at Colorado public colleges and universities indicates that incremental improvement will occur when something is valued by an institution (1985 – 1995). When an indicator is politically important it changes more radically. The legislative interest in retention rates under the Quality Indicator legislation (1995 – 1999) has elevated retention to statewide importance. The importance of retention rates to the QIS system coincides with an overall increase in Colorado retention rates.

coincides with an atypical increase in Colorado retention rates.

- While advising systems vary in quality and intensity, any institutional shortcoming may be compounded by student behavior. Not only do students avoid advising sessions, but in some cases, they ignore or postpone acting on advice. For example, a student's test scores may indicate weakness in mathematical skills, but the student fails to enroll in remedial course work.

## Key Recommendations

1. The importance of the enrollment study to policy decisions suggests that CCHE should expand this analysis in two areas – (1) examine in-depth those patterns that appear to help students succeed, and (2) assist college presidents who are committed to improving the quality of undergraduate education by conducting requested research studies. For example, several institutions requested a longitudinal study of students who are enrolled in postsecondary options and those who earn advanced placement credit. Specifically, do entering freshmen who have earned college credit during high school graduate more quickly than freshmen who begin college without prior credit?
2. Legislative interest in the Quality Indicator System has elevated retention rates to statewide importance. CCHE should direct QIS performance funding to colleges with retention gains.
3. Expand and improve the quality of higher education academic data. The state would be in a better position to answer policy questions if the database is expanded and the quality controls strengthened. CCHE developed a student database in 1986 to respond to the legislative issues identified in HB 85-1187. Yet, using that database, it is not possible to answer key policy questions. For example, it is not possible to determine the remedial course patterns without a special study. The data design should be complete by December 2000 so that all institutions can report the new data elements in the next academic year, i.e., July 2001 – June 2002. The proposed timing is critical for mandated state and federal reports.
4. The higher education academic community supports establishing common data definitions and using them unilaterally to the maximum extent possible. During the HB99-1289 study, the inconsistency and incompleteness of the data submitted by the institutions often required using less than desirable data for the analysis. It became obvious that the definitions used historically are insufficient to describe the student profiles or enrollment patterns or to assist prospective students make informed college enrollment choices.
5. CCHE should adopt statewide policies or incentives that promote stronger advising practices and early correction of academic deficiencies. Proposed financial aid policies are moving in this direction but only apply to students receiving state financial aid. Policy should be developed that can be monitored through the statewide data system. This approach provides an opportunity to reward institutions through the Quality Indicator System for taking initiative and action on this educationally relevant indicator. College students themselves have expressed strong interest in improving the advising systems at the colleges and universities.
6. Advisors and faculty at community colleges and four-year institutions should encourage students to choose a major during their sophomore year.
7. It is recommended that CCHE collaborate with CDE to evaluate the progress of the students enrolled in pre-collegiate programs and their level of academic preparation. In the past year, college presidents have expanded the campus pre-collegiate programs and the state is piloting a middle school pre-collegiate program. These programs offer solid transition strategies until Colorado's K-12 system has fully implemented its standards-based education system.
8. CCHE should explore ways to support pre-collegiate initiatives. The intent of the Postsecondary Options statute is to provide a bridge between high school and college. In some instances, the statute is being used as a tuition-free strategy for the first year of college. On the other hand, precollegiate programs may meet the intent of the statute better than the current arrangements with school districts.
9. CCHE should change the transfer standards in the Statewide Admission Policy. While Colorado has a strong commitment to transfer, its admission policies are not aligned with the data on student performance. The policy should encourage students to complete an associate transfer degree or the core curriculum prior to transfer.

# Executive Summary

## Chapter 10 – Quality Indicator System Assessment

The first part of this chapter presents the nine quality indicators, data, and benchmarks which comprised the quality indicator system for 1999. Several general conclusions are reached. In response to SB 99-229, a more comprehensive quality indicator system for the future is presented in the second portion of the chapter. It includes a set of 29 indicators.

### Key Findings and Recommendations

- With few exceptions, graduation rates for the four-year institutions lag behind national benchmarks for similar institutions. Governing boards and institutions should develop and implement strategies to improve the rates.
- For the higher education system as a whole, the instructional productivity of full-time faculty is high. Among the four-year institutions, however, the productivity is attributable to faculty who do not enjoy either a tenured or tenure-track appointment. Governing boards and institutions should develop and implement a more equitable distribution of teaching workload among all types of full-time faculty.
- The instructional productivity of faculty varies greatly from institution to institution. For those institutions with instructional productivity less than their comparable institutions, aggressive steps should be taken by the governing boards and institutions to increase instructional productivity to the level of their comparable institutions. The highest instructional productivity level among similar institutions should be the benchmark applied to all the institutions of similar type.
- For the higher education system as a whole, the achievement rates of students on comprehensive tests and licensure examinations are outstanding. However, the performance of students from particular institutions on certain tests or examinations shows that some weaknesses may exist in certain programs. These institutions and their governing boards should undertake immediate reviews of these programs and take action to correct the weaknesses.
- Institutional support expenditures (i.e., administrative expenditures) as a percent of institutional operating budgets vary significantly among similar institutions. For those institutions with higher institutional support expenditures, reducing administrative costs should be a high priority. The lowest percent among similar institutions should be the benchmark applied to all the institutions of similar type.
- Since the quality indicator system focuses on undergraduate education, the General Assembly should consider separating the funding for graduate education from the funding for undergraduate education so the latter can be more directly linked to the quality indicator system.

### An Overview

In 1996, the General Assembly passed HB 96-1219 – the Higher Education Quality Assurance Act – which outlined the General Assembly’s expectations for a quality indicator system. In the 1999 legislative session, SB 99-229 was passed and signed into law by Governor Owens. SB 99-229 refined HB 96-1219.

During 1999, the CCHE and governing boards worked collaboratively to follow the directives of HB 96-1219 while implementing SB 99-229. This work took two forms. First, a core set of nine indicators was established for use during 1999. Second, a more extensive and comprehensive system for the future was established, comprised of 29 indicators. The nine indicators are included among the 29 indicators.

The data acquired in 1999 for the nine indicators led to several general conclusions. However, HB 96-1219 requires a follow-up, due by January 30, 2000, from the governing boards and institutions, which will present their conclusions along with their strategies and actions in response to the data.

### Nine Indicators and Data for 1999 with General Conclusions

#### Indicator #1: Graduation Rates and Credits for Degree

The graduation rate portion of this indicator measures graduation rates after 4, 5, and 6-years of the respective entering first-time, full-time, degree-seeking freshmen.

The second portion of this indicator applies to only the four-year institutions and measures the percent of students who



The second portion of this indicator applies to only the four-year institutions and measures the percent of students who complete their baccalaureate degree having earned no more than 110% of the required number of credits for the degree. A general conclusion reached from the data for graduation rates at the four-year institutions is that with few exceptions, graduation rates lag behind national benchmarks for similar institutions. Governing boards and institutions should develop strategies to improve the rates.

#### Indicator #2: Faculty Instructional Productivity

This indicator measures the percent of a 40-hour work week that full-time faculty devote to teaching and teaching-related activity (e.g., preparation for teaching, grading of papers and tests, advising students, office hours, e-mail interaction with students). Overall, instructional productivity is high among full-time faculty. However, in the four-year institutions, the workload is disproportionately borne by faculty that are neither tenured nor on a tenure-track appointment. One general conclusion reached from the data is that the instructional workload in the four-year institutions should be more evenly distributed among all full-time faculty. Another conclusion is that if one institution can achieve a particular productivity level, the other institutions of similar type should also be able to achieve that same productivity level. Thus, the benchmark for institutions of similar type should be set at the productivity level of the institution with the highest level.

#### Indicator #3: Freshmen Persistence

Research shows a strong correlation between high graduation rates and high freshmen retention and persistence rates. The probable time for students to dropout of higher education is during or at the end of their first year of enrollment (often the freshman year). Thus, retention and persistence of freshmen is given a high priority by institutions in terms of student support and intervention activities. The percent of first-time, full-time, degree seeking freshmen who began their higher education career in summer or fall of 1997 and persisted in Colorado public higher education is this indicator.

#### Indicator #4: Achievement Rates

How well institutions have prepared their students is captured, in part, by how well graduating students perform on comprehensive examinations, tests, and discipline or professional-specific licensure examinations. The percent of student graduates taking various licensure, professional association, major field, or graduate school admission tests or examinations for the first time who passed are reported as achievement rates for this indicator. Mean scores and/or passing rates on Colorado PLACE test (teacher preparation), Graduate Record Examination (general knowledge), Uniform CPA Examination (accounting), Registered Nurse Licensure Examination (nursing), Practical Nurse Licensure Examination (nursing), F Technology Examination (radiology), Fundamentals of Engineering Examination (engineering), and several other tests/examinations utilized by at least one institution constitute this indicator. For the higher education system as a whole, achievement rates are outstanding. However, the performance of students from particular institutions on certain tests/examinations shows that some weaknesses may exist in certain programs. A general conclusion reached from the data is that these institutions and their governing boards should undertake immediate reviews of these programs and take action to correct the weaknesses.

#### Indicator #5: Lower Division Class Size

Integrated with comprehensive advising and counseling, appropriate intervention techniques, and extensive student support systems, the provision of small classes during the first few semesters of a student's collegiate experience is one means institutions can employ to improve freshman retention and persistence. The average headcount enrollment in lower division classes is reported as this indicator. With only a few exceptions, all institutions have met or exceeded the benchmark.

#### Indicator #6: Approved and Implemented Diversity Plan

Each institution was directed by CCHE to develop a plan for enhancing diversity at the institution. That plan, if approved by the institution's governing board and accompanied by a statement from the governing board that the resources inherent in the plan have been committed to accomplishing the plan, constitutes this indicator. All institutions have complied with this indicator.

#### Indicator #7: Institutional Support Costs

The budget category most closely encompassing what is considered administration is the category labeled "institutional support". The administrative efficiency of an institution is reflected in the percent of its overall operating budget that is devoted to institutional support. The lower the percent, the more administratively efficient is the institution. Certain conditions affect the administrative efficiency of an institution. The categorization of certain expenditures by the institution, the enrollment size of

the institution, the institution's overall general fund, and the admission selectivity of the institution are examples of such conditions. A general conclusion from the data is that administrative efficiency varies significantly among similar institutions. For those institutions with higher administrative expenditures as a percent of their overall operating budget, reducing administrative expenditures should be a priority. Also, the most efficient of the institutions should serve as the benchmark for all the other similar institutions.

#### Indicators #8 and #9: Institution-Specific Indicators Selected by the Institution

The diversity of role and mission among Colorado's public institutions of higher education cannot be adequately taken into account by a common set of indicators. The quality indicator system must recognize and honor this diversity. The diverse institutions are accommodated by having the institutions identify two indicators which measure the uniqueness of the institution.

### **Future Quality Indicator System**

The nine indicators listed above, along with 20 other indicators, comprise the quality indicator system for the future. Among the additional indicators are: (1) an assessment of foundational skills and general literacy competence of students nearing completion of the institution's general education program, (2) a graduation year assessment of the student's knowledge in his/her major field, vocational, or training area, and (3) percent of baccalaureate and associate degree programs requiring no more than 120 or 60 credits respectively. As with the quality indicator system utilized during 1999, institution-specific indicators will continue to be included in the quality indicator system for the future.

**Executive Summary**  
**Chapter 11 – Capital/Maintenance**

**(WILL BE AVAILABLE AT A LATER DATE)**

# Executive Summary

## Chapter 12 — Distance Learning: Colorado Access

In HB99-1289 the General Assembly seeks to answer several questions concerning distance learning. Distance learning is the use of technology to deliver instruction. It does not include correspondence courses or technology-enhanced instruction in normal classroom. Central questions posed are:

- Can Colorado institutions use distance learning to more effectively and efficiently meet the demands of diverse populations across the state?
- Can distance learning make higher education more accessible?
- Can distance learning make higher education more affordable?
- Is there a role for privatization in the delivery of distance learning?
- Is distance learning in Colorado and its delivery system comparable to the use of technology in other states?

In examining the current status of distance learning, CCHE looked at the current use of distance learning techniques technologies by institutions, including:

- support amounts paid to the institutions by CCHE;
- charges to students by institutions and entities other than the institutions;
- reimbursements to students for such charges; and
- the potential for increased use of distance learning techniques and technologies in meeting future demand for higher education, especially in rural areas.

### Key Recommendations

- CCHE and the governing boards should explore ways to share the development and/or delivery of distance learning courses and/or programs that have significant high enrollment across several institutions.
- CCHE and the governing boards should explore ways to aggregate their purchasing power in the procurement of outside services that support distance learning.
- CCHE and the institutions should examine a funding model for the support of distance learning.
- On a pilot basis, CCHE and the institutions should experiment with ways to increase the efficiency of distance learning beyond what is possible with the traditional classroom model.
- CCHE should support efforts of the state to ensure telecommunications infrastructure is available in all regions of the state adequate to provide distance learning services to all citizens.
- Efforts to enhance the opportunities for rural residents to complete bachelors' degrees should be emphasized by both CCHE and the institutions. One focus on this effort involves CCHE's budget recommendation for FY00-01 to implement a Rural Education Access Program, allowing community colleges to purchase education services for local residents.

### General Findings

- Access, convenience, and quality are three benefits of distance learning classes to students.
- Distance learning classes are typically teacher-led and involve a defined group of students who all begin and end the course together.
- A number of degrees may be obtained entirely through distance learning.

### Enrollment Impacts

- Participation in distance learning classes is significant, totaling 27,031 (headcount, some duplication possible in numbers) students in 1999.
- Some institutions have been more aggressive in offering distance learning than others.

### Class Size Differences

- While distance learning class sizes are typically capped at the traditional classroom size of 20-25 students to accommodate students/teacher interaction, distance learning class sizes are in fact smaller, averaging about 10 to 12

students per course.

- A current drop in online class size may suggest that too many institutions are targeting the same market.

## Various Media Options

- Online (typically Web-based) classes dominate. Their use is rapidly expanding relative to other media.
- Course offerings and enrollments of video-based classes (whether one-way or two-way interactive) are declining.
- Distance learning is most used (69 percent) by students in lower division distance courses.
- Community colleges offer 78 percent of the distance learning courses overall and also 78 percent of lower division distance courses.
- Significant distance learning offerings exist at each level of instruction and for both types of institutions (two-year and four-year or more).

## Discipline, Field Area

- Distance learning courses are broadly offered across the full spectrum of disciplines.
- Liberal arts courses are offered more than any other type.
- There are substantial offerings in engineering and the sciences.
- There may be an opportunity to share course development costs across institutions; the community colleges serve the substantial proportion of lower division enrollments in Social Sciences, Business and Management, Letters, Psychology, Computer and Information Sciences, and Mathematics.
- There are significant additional costs associated with distance learning, technological and organizational.
- Costs associated with development differ from costs associated with delivery.
- Costs also differ by medium used. Due to high cost for telecommunications connections, interactive video may have higher ongoing costs than online. However, online programs typically have higher up-front development costs on a course-by-course basis.
- The increased costs per student are not offset by larger class size – class sizes are smaller than average and are limited by the "class" format of current distance learning approaches.
- Increased cost may, however, be compensated through savings in classroom space at the margin (e.g., where overall institutional enrollment is increasing and new capital construction is required).
- The same outside services are procured by a number of institutions. Opportunity exists for aggregating purchasing power.
- Students are willingly paying modest extra fees for the convenience of distance learning.

## Cost Recovery

- Almost all (80 percent) of distance learning courses are offered as Resident Instruction and thus are eligible to receive state reimbursement.

## Future Potential

- National studies have not found a difference in the instructional outcomes between distance learning and traditional classroom instruction.
- Distance learning appears to be suitable across a broad spectrum of disciplines and levels of instruction.
- Distance learning has the potential to support degree completion.
- Distance learning has the potential to support short-term education needs.
- Distance learning has the potential to facilitate college-high school articulation.
- Distance learning has the potential to deliver training to business sites.
- For distance learning to reach its potential, functional specialization may have to occur. Market forces may lead to the unbundling of the various functions of teaching – development, delivery, technology support, and assessment.

## Existing Barriers

- Distance learning is best suited to mature students with developed learning skills who can work independently (no matter at what age this occurs).
- Home access to PCs and the Internet is still not available in the majority of homes, but this is changing rapidly.

- The state's telecommunications infrastructure is inadequate at present to support broadband distance learning (e.g., interactive video) in all regions of the state, but the state has a strategic plan in place to address this.
- Full-scale deployment of distance learning is hampered by a lack of funding for basic distance learning infrastructure, including course development resources, student services, and delivery technology.
- Adequate incentives for faculty to participate may be lacking.

# Executive Summary

## Chapter 13A – Faculty Salaries

The Colorado Commission on Higher Education examined faculty salaries to determine if there had been growth/decline in faculty salaries at Colorado public institutions of higher education and to compare this data with similar institutions both in-state and out-of-state.

### Key Findings

- Average faculty salaries (current dollars unadjusted for inflation) for Colorado full-time faculty increased 300.7 percent from 1970-71 to 1996-97. The national average was 299.7 percent.
- The average salary for Colorado faculty was \$50,095 in 1996-97, slightly below the national average of \$50,829.
- Colorado Mountain College (CMC) and Aims had average faculty salaries 12 to 21 percent lower than national averages in 1998-99.
- Combined all other Colorado community colleges were 10 percent below the national average.
- Of the state's baccalaureate schools only Metro had average faculty salaries at or near national averages.
- UCD and UCCS average faculty salaries were at or near national averages.
- Of the state's doctoral/research institutions only UCB was above the national average.
- Overall, average four-year faculty salaries compared with the inflation have met or exceeded inflation for the past decade except in 1989-90.
- Overall, average two-year faculty salaries have fallen below the rate of inflation.
- On average, the gap between average female and male faculty salaries has increased at all Colorado institutions (four-year and two-year).
- At Colorado two-year and four-year institutions, the numbers of faculty (part-time and full-time) have increased faster than student FTE and student headcount numbers from 1989-90 to 1998-99.
- Statewide, instructional expenditures as a percent of total institutional expenditures have remained at about 30 to 36 percent of all higher education expenditures for the past ten years.
- Faculty turnover rates at the community college system have remained relatively constant at about nine percent a year for the past five years.
- Faculty turnover rates at the four-year schools have remained relatively constant at the UC and CSU systems. Turnover has increased at CSM, UNC and the State Colleges.

### Background to Issue

Higher education employees nationwide increased slightly from 1993 to 1997, as did the number of student full-time equivalent (SFTE) enrollments according to the National Education Association's (NEA) September 1999 edition of *Update*. From 1993 to 1997, the number of full-time faculty nationwide increased less than ½ of a percent. Part-time faculty increased about five percent.

### Methodology

CCHE's used methods similar to those used by the National Center for Higher Education Management Systems (NCHEMS) in *Faculty salaries at Public Colleges and Universities in Colorado: Their Relative Levels and Their Role in Faculty Recruitment and Retention* (issued to the Legislative Audit Committee in 1990). National data sources were used to construct comparisons between average faculty salaries at Colorado colleges and universities and average faculty salaries at higher education institutions nationally. CCHE also used national classifications of institutions developed by the Carnegie Foundation for the Advancement of Teaching and peer groups identified by Colorado institutions of higher education to do comparisons.

### Key Definitions

This report describes salaries in terms of current dollars (i.e., unadjusted for inflation) and constant dollars (i.e., adjusted for inflation). Average salaries are used to compare faculty salaries in Colorado with salaries nationwide. The focus here is on faculty with 9/10-month contracts. About 86 percent of all college faculty nationwide are on 9/10-month contracts. The

remaining 14 percent of faculty are on 11/12-month contracts. UCHSC and CSU have most of the 11/12 month contract faculty. The data here compare 9/10-month average faculty salaries in Colorado and institutions throughout the U.S. Salaries for faculty on 11/12-month contracts are not included in this analysis except for the UCHSC where it is compared with national peers (i.e., specialized institutions).

## Review of NCES Findings

National Center for Education Statistics (NCES) data show that Colorado average faculty salaries (for faculty on 9/10-month contracts) fell below national averages in the mid-1970 and for much of the 1980s. More recently, Colorado average faculty salaries (current dollars) improved in the late 1980s and by the 1990s Colorado faculty salaries have been close to national averages.

From 1970-71 to 1996-97, average salaries (in current dollars) for all Colorado full-time faculty on 9/10-month contracts increased 300.7 percent. The national average was 299.7 percent. The average salary of Colorado higher education faculty was \$50,095 in 1996-97, slightly below the national average of \$50,829. Eighteen states (mostly on the East Coast) had average salaries higher than Colorado faculty, 31 states had average faculty salaries lower than Colorado. When compared with neighboring states, only Arizona's full-time faculty fared better than Colorado faculty in terms of average salaries (current dollars).

## Types of Colorado Institutions

Higher education institutions can be categorized in a number of ways. For example, institutions can be defined as public, private or church-related. Within these designations, institutions can be further delineated by characteristics such as institutional size, role and mission, budget, type of programs offered, research capabilities, etc. In 1973, 1986 and 1999 Carnegie Foundation for the Advancement of Teaching developed and revised an institutional classification system for U.S. higher education. Carnegie categories CCHE used to compare Colorado institutions with national peers were:

- Doctoral institutions (UCB, CSM and CSU),
- Comprehensive institutions (UNC, UCCS and UCD),
- Baccalaureate institutions (ASC, USC, Mesa, Metro, Fort Lewis and WSC),
- Two-year institutions with faculty assigned to ranks—professor, assistant professor, associate professor, lecturer (CMC and Aims), and
- Two-year institutions where faculty are not assigned ranks (all other public community colleges).

Comparing Colorado institutions only with other Colorado public institutions by these Carnegie classifications shows that:

- ACC, CCA FRCC, LCC and PPCC had the highest average faculty salaries when compared with other Colorado two-year colleges except CMC and Aims from 1989-90 to 1998-99.
- CMC had higher average faculty salaries than Aims from 1989-90 to 1998-99.
- Metro, Fort Lewis and USC had the highest average faculty salaries of the state's baccalaureate colleges and universities.
- UCD had the highest average faculty salaries of the state's comprehensive universities.
- UCB had the highest average faculty salaries of the state's doctoral universities.

## Colorado Faculty Salaries Compared with Carnegie Peer Groups by Rank

When the average faculty salaries of Colorado community college faculty are compared to their national peers' average faculty salaries for FY 1998-99, data indicate that:

- Aims and CMC had average full-time faculty salaries 12 to 21 percent lower than similar community colleges.
- All other Colorado community colleges had average full-time faculty salaries on average, ten percent below similar community colleges nationwide.

When the average faculty salaries of Colorado four-year public institution faculty are compared with their respective Carnegie national peer groups for FY 1998-99, the data indicate that:

- Of the state's baccalaureate schools, only Metro had average faculty salaries at or near national averages.



- UCD and UCCS average faculty salaries were above or near, respectively, average faculty salaries at comparable universities nationwide.
- UNC average faculty salaries were below average faculty salaries at other comprehensive universities nationwide.
- UCB had average faculty salaries above average full-time faculty salaries when compared with other doctoral universities nationwide.
- CSU and CSM average faculty salaries were below the national averages for doctoral schools in 1998-99. Prior to 1998-99, CSM's average faculty salaries were at or above the national norms.

## Colorado Faculty Salaries Compared With Institution Peers

In September 1999, CCHE, in conjunction with representatives from each of the governing boards, identified the following specific peer institutions to compare Colorado faculty salary data with institutionally recognized peers.

Data from NCES from FY 1994-95 to FY 1998-99, indicate that:

- Average faculty salaries at the UCHSC were above UCHSC U.S. peer institutions.
- UCD average faculty salaries have been above averages for their peer institutions. UCCS faculty salaries are about average for these peers.
- UNC's are lower than the comprehensive group peers.
- Average faculty salaries at UCB and CSU are lower than their peers.
- Average faculty salaries at Metro are lower than its peers.
- USC, Fort Lewis and WSC are at or near their peers.
- ASC and Mesa faculty salaries are lower than their peers.
- CSM has consistently been above the average for its peer institutions except in FY 1998-99. This may be a data problem.
- Average faculty salaries at the State's urban community colleges (CCD, PPCC and PCC) are below their peers.
- Average faculty salaries at the State's suburban community colleges (ACC, Aims, CCA, FRCC, and RRCC) are below their peers.
- Average faculty salaries at the State's rural community colleges (CMC, LCC, MCC, NJC, OJC, TSJC and NJC) reveal that CMC, LCC and OJC are at or near their peers. The others (NJC, MCC, TSJC and NJC) are below the averages.

## Comparison of Colorado Average Faculty Salaries with the Consumer Price Index

The NEA has reported that average faculty salaries, when compared with inflation, have declined .8 percent since the 1970s.

When Colorado average faculty salaries (constant dollars) are compared to the CPI:

- Overall, average full-time four-year faculty salaries compared with the CPI appear to have met or exceeded inflation for all years except 1989-90 for the last decade
- Overall, average full-time two-year faculty salaries as compared with the CPI appear to have been below the rate of inflation for the entire decade

## Comparison of Average Faculty Salaries by Gender

The NEA 1998 *Almanac of Higher Education* states that nationwide male faculty members earned more than females in 1996-97, regardless of institutional level and control. The salary gap (nationally) in 1996 was \$9,515 in public institutions and \$11,863 in independents. Since 1995-96, the disparity (nationally) has increased by almost 3 percent in each sector. Barring several minor exceptions, men also earned more at every rank.

Data from Colorado public institutions of higher education show that:

- On average, the gap between average female and average male faculty salaries at Colorado public four-year schools increased over the past ten years. In 1989-90, on average male faculty at four-year institutions made about \$3,951 more than female faculty. In 1998-99, the difference was about \$10,959.

- On average, the gap between average female and average male faculty salaries at Colorado public two-year institutions also increased. In 1989-90, on average, male faculty made about \$2,769 more than female faculty. In 1998-99, the difference was about \$6,667.

## **Comparison of Average Faculty Salaries by Discipline**

Colorado four-year faculty average salaries compared with faculty salaries for the same disciplines nationwide for 1998-9 shows that the lowest average faculty salaries were in fine arts, languages, and home economics while, as might be expected, the highest average salaries were in engineering, accounting computers and business administration

Data for the community colleges show that there are fewer significant differences between disciplines such as technology-related fields and such disciplines as visual arts and languages in the two-year schools than there are in the four-year institutions.

## **Comparison of Student FTE and Headcount with Total Faculty**

As a part of the HB 1289 report, CCHE requested that Colorado public institutions of higher education provide data on numbers to compare with increases in students both headcount and FTE. Previously, CCHE's information on faculty was reported as a part of its reports that came from two sources — the NCES Fall Staff surveys done every other year and the CCHE surveys done in intervening years. CCHE's review of the data indicates that it was incomplete and often unreliable. Continuity of reporting period, uniformity of methods for calculating faculty (FTE) and numerous other issues limit comparability of data among institutions and governing boards.

At the four-year level, student FTE and student headcount increased six percent and eight percent, respectively, from 1989-90 to 1998-99. At the same time, total faculty (part-time and full-time) increased 48 percent. Four-year full-time faculty increase 29 percent and part-time faculty increased 89 percent

At the two-year level, student FTE and student headcount increased 19 percent and 15 percent, respectively, from 1989-90 to 1998-99. Total faculty (part-time and full-time) increased 84 percent during that period with full-time faculty increasing 112 percent and part-time faculty increasing 112 percent.

## **Instructional Expenditures Compared With Total Expenditures**

Data show that Colorado public institutions of higher education spend on average about 30 to 36 percent of their total budget on instruction related expenditures. The instruction expenditures range from a low in FY 1999 of 24 percent at the CSU system to a high of about 48 percent at SBCCOE/CCCOES. The trends over the past ten years show that instructional expenditures as a percent of total expenditures have:

- decreased from 33 to 30 percent at CSM.
- decreased from 32 to 28 percent at the CU system.
- decreased from 31 to 24 percent at the CSU system.
- remained relatively constant at the Trustees of State Colleges system.
- decreased from 54 to 48 percent at the SBCCOE/CCCOES system.
- remained relatively constant at UNC.

## **Comparison of Faculty Turnover Rates**

Data from the community colleges show that faculty turnover rates have increased in the past five years. Community college faculty turnover is about nine percent per year.

For the four-year schools:

- University of Colorado faculty turnover has remained at about two to three percent per year from 1995 to 1999.
- CSM faculty turnover at CSM faculty turnover increased to about nine percent per year for the past two years.
- State College system faculty turnover increased to about seven to eight percent over CSU system faculty turnover has remained relatively constant at about four to five percent for the system for the past five years.
- UNC faculty turnover has increased over the past three years.

✓

x

✓

# Executive Summary

## Chapter 13B – Part-Time Faculty Salary Analysis

Part-time faculty teach significant numbers of college and university courses and are, therefore, a key point of contact between higher education institutions and students. Today, 43 percent of all faculty positions nationally are part-time or non-tenure track positions. In 1970 only 22 percent of faculty were part-time.

In Colorado about 86 percent of all community college faculty are part-time. About 43 percent of all four-year faculty are part-time or non-tenured.

### Key Findings

- Data on part-time faculty salaries and average workloads is limited.
- Forty-three percent of faculty nationally are part-time. In Colorado, 86 percent of all two-year faculty and 43 percent of four-year faculty are part-time or non-tenured.
- CCHE calculated that the average part-time faculty salary was \$4,505 and \$7,457 at the two-year and four-year schools, respectively in 1998-99.
- The top concern of part-time faculty is compensation.
- The CU system is ahead of most schools in the nation in addressing part-time faculty pay and benefit issues.
- Data on faculty salaries by ethnicity is not available nationally or in Colorado.
- The ethnic make-up of all higher education staff has not changed much in Colorado in a decade.

A 1998 CU study found that part-time/non-tenure track faculty taught:

- 51 percent of the total undergraduate credit hours at UCCS and 37 percent of the upper division credit hours in 1998.
- 46 percent of the total student credit hours at UCD in 1997-98.
- 49 percent of the total student credit hours at UCB including 59 percent of lower division student credit hours, 42 percent of upper division and 19 percent of graduate and professional level hours.

### Part-Time Faculty Numbers and Salaries

Data on numbers of part-time non-tenure track faculty are available but information on their salaries, benefits and their average workloads are very limited. Using data reported by the community colleges, CCHE found that the two-year (excluding Aims and CMC) employed 6,014 total faculty in 1999. Of these, 864 (14 percent) were full-time and 5,150 percent) were part-time.

Community college part-time (adjunct) faculty are most likely to teach business, English, health professions, visual arts or social science courses. Similarly, full-time faculty are most likely to teach in health professions, business, English and mathematics.

The average salary for part-time community college faculty calculated by CCHE was \$4,505 in 1998-99.

Data show that, collectively, the state's four-year schools employed 9,117 total faculty, including 3,919 (43 percent) part-time and 5,198 (57 percent) full-time in 1998-99. Four-year part-time (non-tenured) faculty are most likely to teach courses in health, social sciences, education, visual arts or business. There is little difference in the most common fields taught by full-time and part-time faculty. Four-year full-time faculty are most likely to teach courses in health, social sciences, biological sciences, engineering or business. The average salary calculated by CCHE for all part-time faculty teaching at four-year institutions statewide (excluding ASC and UNC) was \$7,457 in 1999.

### Part-Time Faculty Issues

A 1998 CU system report, "Nontenure-Track Faculty" of 205 of non-tenure track faculty found that:

- 99 (48%) cited unfair pay as their number one concern.

- 94 (46%) expressed dissatisfaction with CU policy related to lack of equity and absence of clarity regarding their role.
- 70 (34%) felt their contribution is not valued by the CU or their campus departments.
- 55 (27%) were satisfied with their position at CU.
- 52 (25%) included job insecurity, late employment notification, inability to move into tenure-track positions.

A separate study of two-year community colleges found that low salary was the primary area of concern by part-time faculty.

### **Steps to Address Part-time Issues**

The CU system has begun to address various part-time faculty issues. CU's has created an Instructor Bill of Rights that provides more job security for part-time and non-tenure track faculty by setting a floor for salaries, providing for at least one-year contract and allowing benefits for faculty who teach at least three years. CU is ahead of the curve nationally responding to the increasing numbers of part-time and non-tenure track faculty and by addressing various compensation benefit issues.

CU's model may be worth consideration by the state's institutions. As the number of part-time faculty increase, issues related to these faculty will need to be addressed both by individual governing boards and from a statewide perspective.

### **Ethnic Diversity in Colorado Higher Education Institutions**

Faculty salaries are a primary focus of HB 99-1289. However, the legislation requests analyses of faculty salaries based on number of other attributes including ethnicity. Data on average faculty salaries by ethnicity is not available from NCES except as a part of the IPEDS Fall Staff surveys that report such information by salary bands rather than averages. Thus, it is not possible to identify average faculty salaries by ethnicity nor is it possible to compare salaries by ethnicity with overall faculty salaries statewide or nationally.

While data on salaries (faculty or all other employee groups) are not available at the ethnic level, information is available about the ethnic make-up of higher education personnel. The mix of different ethnic groups working in all job classification — part-time and full-time and by type of job (e.g., skilled crafts, administrative, clerical, etc) in Colorado public institutions of higher education has changed slightly, over the past decade. Data show that the number of white males and females working in higher education decreased by about two percent over the past decade. The number of African-Americans decreased one percent. Conversely, the number of Hispanics and Asians working in higher education increased two percent and one percent, respectively. Native Americans remained stable at one percent of the total staff (faculty, administrative executive) working in higher education.

Colorado Commission on Higher Education (CCHE)  
January 14, 2000  
Agenda Item IV, B

**TOPIC: PH.D. IN COGNITIVE SCIENCE AT THE UNIVERISTY OF COLORADO AT BOULDER**

**PREPARED BY: RAY KIEFT**

## **I. SUMMARY**

The Regents of the University of Colorado request Commission approval to offer a Ph.D. degree in Cognitive Science at the University of Colorado at Boulder. The purpose of the program is to "...provide a formal mechanism for and recognition of extensive interdisciplinary training in cognitive science." The University anticipates an enrollment of four or five students per year reaching a total of twenty to twenty-five students annually enrolled in the program. The program builds upon the nationally recognized and highly successful Institute of Cognitive Science at the University of Colorado at Boulder.

All courses required for the program already exist with the exception of the research practicum course. No additional faculty are required. The program will be administered by the Institute of Cognitive Science under the overall direction of the Dean of the Graduate School. No additional space is required for the program. Annual operating costs are expected to range from approximately \$185,000 to \$217,000 over the initial five years of the program. The University has committed to reallocating approximately 2/3 of these needed funds from other University sources. Grant awards are expected to cover the balance of funds with the exception of at most \$19,000 to be acquired from tuition and additional general fund.

No other cognitive science doctoral program exists in Colorado and only one program exists west of the Mississippi River at the University of California at San Diego. Several companies within Colorado have shown their interest in hiring graduates of the program.

The Commission examines several questions before action on a new degree proposal request. The examination of each question resulted in a "positive" conclusion. Staff recommends approving the request for a Ph.D. in cognitive Science at the University of Colorado at Boulder.

## **II. BACKGROUND**

The University of Colorado at Boulder has proposed a new degree, a Ph.D. in Cognitive Science. The Board of Regents approved the proposal at its October 14, 1999, meeting. Since the Commission considers requests for new degree programs in January and June, this proposal is before the Commission at this time.

The statements in the background section are extracted from the proposal without judgment or comment.

In the last fifty years, a new integrated approach to the study of cognition has arisen, under the name "Cognitive Science." Cognitive Science builds upon the achievements of the disciplinary studies of cognition, both in terms of the results that have been achieved and the methodologies that have been developed, but attempts to integrate these into a new way of thinking about cognition.

Cognitive Science is the study of human knowledge, one aspect of which is the study of how knowledge is acquire stored, and represented in the mind, including the mind's underlying biological mechanisms. Another aspect of cognitive science concerns how knowledge is understood, remembered, communicated, and used in the perform activities, including the acquisition and application of skills and information. This latter aspect provides the p applications of cognitive science, and thereby ensures a demand for graduates in academic and industrial market: important characteristics of the field are that the primary mode of explanation is the development of computational models of cognitive structures and process and that a number of traditional disciplines have contributed importan methods and insights to cognitive science. As a result, the research and institutional organization of the fie

interdisciplinary.

The purpose of the proposed program is to provide a formal mechanism for and recognition of extensive interdisciplinary training in cognitive science. The proposed program augments the current course offerings and work in cognitive science by the Institute of Cognitive Science (ICS). The ICS has gained an international reputation as evidenced by a recent evaluation by an external review team which rated ICS among the top dozen programs in cognitive science internationally with ground-breaking research being pursued in a number of areas.

The broad interdisciplinary graduate training involved in the proposed program is in accordance with recent recommended national reforms in graduate training in science and engineering as recommended by the Committee Science, Engineering, and Public Policy, a joint committee of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The American Association for the Advancement of Science has pointed to interdisciplinary research as one of the top three issues confronting science and technology in the coming decade proposed program meets these needs for the field of cognitive science.

Companies and industries with a significant representation in Colorado expressed their intentions to hire graduates of the proposed program. International Business Machines (IBM), U.S. West, and Berdy Medical Systems are examples.

### **III. STAFF ANALYSIS**

Staff analyzed the proposal in the context of the criteria outlined in *POLICY AND PROCEDURES FOR THE APPROVAL OF NEW ACADEMIC PROGRAMS IN STATE-SUPPORTED INSTITUTIONS OF HIGHER EDUCATION IN COLORADO*. These criteria are:

1. To ensure that the proposed program supports the institution's role and mission.
2. To ensure that the governing board of the proposing institution has considered how this proposal fits within its priorities.
3. To ensure that the proposed program provides a quality educational experience.
4. To ensure that the program is developed in response to bona fide need.
5. To ensure that the institution has the capacity to offer a quality program efficiently.
6. To ensure that there is no unnecessary duplication or proliferation of programs in the state.
7. To ensure that potential economic impact of this program is substantial if the institution has asserted economic impact.

#### **1. Role and Mission**

The University of Colorado at Boulder is a comprehensive graduate research university by statute: "The Boulder campus of the University of Colorado shall be a comprehensive graduate research university with high admission standards with a comprehensive array of undergraduate programs" (C.R.S. 23-20-101(1)(a)). As a research-based program, the proposed Ph.D. in Cognitive Science's goals mesh with the institution's role and mission. As an interdisciplinary program, it integrates with other existing programs that are in accordance with the institution's role and mission.

Staff finds that the proposed program is congruent with the role and mission of the University of Colorado at Boulder.

#### **2. Regents Consideration of How This Program Fits Within the Board's Priorities**

In its discussion and review of the proposed program, the Regents considered the interdisciplinary nature of the proposed program, its relation to state workforce needs, the use of resources, the quality of the proposed program, and the strength of the faculty. The result was a unanimous vote to recommend approval of the proposed program by the Commission. In formulating its vote, the Regents rendered high priority of this program in the long-range plans of the Regents for the University of Colorado at Boulder. The importance of the program is acknowledged by the commitment of the Regents to reallocate funds from existing programs and activities to provide the balance of operating funds for the program.

### 3. Quality

The proposed program builds on the foundation of international reputation and distinction of the existing Institute of Cognitive Science at the University of Colorado at Boulder. As with any Ph.D. program, the quality of the proposed program rests first on the shoulders of the faculty and second on the strength and rigor of the curriculum.

The faculty involved with the proposed program have a track record of teaching effectiveness (various awards such as Alumni Association Teaching Recognition Award, President's Excellence in Teaching Award, Faculty Assembly's Teaching Excellence Award), scholarship (e.g., National Young Investigator Award, President's Distinguished Research Award), publication (e.g., editors and associate editors of major research journals), and officers of professional societies. In the review of the proposal by the ex consultant/reviewer commissioned by the staff, Dr. Stuart Card, Research Fellow and Manager of the User Interface Research Group of the Xerox Palo Alto Research Center at Stanford University, stated: "Faculty include a number of the most eminent faculty: department chairs, journal editors, successful grant winners, and people well-known in their field." Dr. Richard Shiffin of Indiana University (an institution with a Ph.D. program in Cognitive Science) in his review of the proposal as part of the University's "quality check" by outside evaluators, stated: "Perhaps the strongest element of this proposal is the quality of the faculty. They are already world renowned for their scholarly and practical contributions to the area of Cognitive Science, in pure and applied domains."

Judging the strength and rigor of the curriculum is a task staff feels is best left to experts in the field. To this end, Dr. Card concluded: "In sum, the strategy of the University in developing this area has been excellent. They have used an evolutionary strategy to create this program one systematic step at a time, building on strengths and minimizing risk. I strongly feel that that the curriculum in the proposed program and the method for organizing it are appropriate for an emerging field such as cognitive science."

Staff examined program quality indicators embedded in the proposal. Such indicators include admission, transfer, retention, and graduation standards, professional requirements, and assessment processes. All indicators suggest a quality program.

### 4. Need

The need for the proposed program is best determined by the past demand for graduates of similar existing programs across the country and by the anticipated demand as expressed by the major employer groups of graduates – government, companies, industry, and academia.

Graduates of the University of Colorado at Boulder in other disciplines, who have added to their portfolio of experience and training by accessing the courses and activities provided by the Institute of Cognitive Science, have been readily hired across the spectrum of employers, based in part on the cognitive science dimension of their portfolio. For example, of forty-one recent Ph.D. graduates who had some involvement with the Institute of Cognitive Science, forty were employed in one of the major employer groups. Several companies and industries in Colorado have expressed intentions to hire graduates of the proposed program.

Dr. Card states: "There is a growing demand for people trained in cognitive science that is fueled by changes in technology. The growth for computer science and for uses of computers involves knowing how to apply computational capability or principles to some applications or to science itself. In the information age, many of these applications (or advances in science) involve the cognitive sciences." The Committee on Science, Engineering, and Public Policy, a joint Committee of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, and the officers of the American Association for the Advancement of Science, state: "More than at any time in the recent past, there is a demand for mechanisms and incentives to foster interdisciplinary research, education, and problem solving." The proposed program meets these requirements.

At the request of staff, a survey was developed to measure need of the proposed program within Colorado. The results of the survey demonstrated a high degree of demand exists in the state. Staff concludes that



there is bona fide need for the proposed program.

## **5. Efficiency**

Since the proposed program builds upon the foundation established by the existing Institute of Cognitive Science and draws upon the existing faculty of the University that have been associated with the Institute of Cognitive Science, the proposed program can be offered and administered efficiently. The proposal argues that because there has been a presence of cognitive science on the campus for several years, the mechanisms are already in place to deliver the degree in a low cost and efficient manner. No new administrative structure or organization is required (e.g., academic department). Additional costs are minimal, ranging from a low of \$185,000 in Year 1 to a maximum of \$217,000 in Year 5. The Regents have committed to funding these costs through a reallocation of approximately 75% with the majority of the balance funded by Federal grants and corporate donations. General fund support amounts to only a few thousand dollars. Staff concludes that the institution has the capacity to offer proposed program efficiently.

## **6. Unnecessary Duplication**

No other Ph.D. program in Cognitive Science exists in Colorado or the Rocky Mountain region. Only one similar program exists west of the Mississippi River at the University of California at San Diego. Similar programs do exist in institutions east of the Mississippi, several being private institutions which are not seen as being duplicative of the student population that is expected to enroll in the proposed program. Staff concludes there is no unnecessary duplication or proliferation of programs.

## **7. Economic Impact**

No economic impact is claimed by the proposed program. Economic impact may occur in the hiring of graduates by Colorado business and industry.

## **IV. STAFF RECOMMENDATION**

**That the Commission approve the request to offer a Ph.D. in Cognitive Science at the University of Colorado Boulder.**

## **APPENDIX A**

### **STATUTORY AUTHORITY**

23-1-107. Duties and powers of the commission with respect to program approval, review, reduction, and discontinuance. (1) The commission shall review and approve, consistent with the role and mission and statewide educational needs, the proposal for any new program before its establishment in an institution. No institution shall establish a new program without first receiving the approval of the commission. As used in this subsection (1), "program" includes any new curriculum which would lead to a new vocational or academic degree. The commission shall further define what constitutes an academic or vocational program and shall establish criteria or guidelines which programs and procedures for approval of new academic or vocational program offerings.

Colorado Commission on Higher Education (CCHE)  
January 14, 2000  
Agenda Item V, A

**TOPIC: CONSUMER GUIDE TO COLORADO'S COLLEGES  
AND UNIVERSITIES**

**PREPARED BY: JEANNE ADKINS**

**I. SUMMARY**

The General Assembly's creation of the Quality Indicator System in 1996 focused the Colorado Commission on Education in a new direction – measuring the quality of the state's public two-year and four-year institutions and providing that information to the public. An integral piece of this statute is publishing a *Consumer Guide to Colorado's Colleges and Universities* (the Guide) to enable students and their parents to make informed decisions about their education.

**II. BACKGROUND**

Governor Bill Owens, the Colorado Commission on Higher Education members, and Executive Director Tim Foster hosted a series of meetings in the summer of 1999 across the state to determine what information parents and students need to know as they make decisions about where to enroll in higher education.

Students and parents, as the central consumers in the higher education delivery system, are faced with rising ever-broadening array of education options. Those choices today are more complicated. Families want to know how much it will cost to educate their children, how long it will take to complete their degree programs, and what kind financial support is available to help them. Students want answers to those questions as well as information on graduation requirements, scheduling, faculty-student ratios and class sizes.

Using elements of the Quality Indicator System and focusing on issues addressed by parents and students in the statewide meetings, CCHE has compiled relevant information in the first *Consumer Guide to Colorado's Colleges and Universities*. The document is in the final-proof stage and that version is attached for Commission review.

The document will be printed and 35,000 copies will be distributed this month to the state's public and private high schools so students planning to enroll in fall 2000 classes will have the information.

Because this data is frequently updated by CCHE, as data changes, students and their parents are referred in the Guide to the CCHE website where updated information will be regularly posted for their use. That website will link to institutional websites ultimately allowing students easy on-line access to information.

A future goal is to link the financial aid application on-line to the site, as well, enabling the student to get as much information as possible in a single location.

**III. STAFF ANALYSIS**

Commission staff in preparing the Guide have gained important insight on what information is most relevant to consumers of higher education services. For example, staff believed a presentation of post-graduation hiring information would be important to consumers. However, this information is not collected in the same manner at all institutions, nor is the data collected at all institutions. Staff hope to focus future efforts on defining issues such as this and integrating the information as it is gathered into the Web version of the Guide.

Because of current data collection schedules, some significant information in this version of the Guide will be updated by reports completed next month. Timing of this Guide in the future should be analyzed to determine whether its publication should be moved up to September so information is within the current year or whether those annual data-gathering efforts to produce information used in the Guide – degrees granted, faculty-student ratios, time to degree and freshman persistence, as examples – should be scheduled differently.

persistence, as examples should be considered exemplary.

Staff is exploring ways to integrate the production of the Guide to include a broader number of institutions, including private institutions, and the proprietary institutions in the state to provide consumers with one-stop on-line information on all post-high school education options in the state. CCHE is working with the Department of Labor, Employment and the Division of Proprietary Schools to develop a plan to accomplish this goal in 2000.

#### **IV. STAFF RECOMMENDATION**

**Commission staff recommend approval of the *Consumer Guide to Colorado's Colleges and Universities* and encourage the placement of the information on the CCHE Website as soon as feasible.**

### **Appendix A**

#### **STATUTORY AUTHORITY**

C.R.S. 23-103-106 (1) states that "Beginning with the fiscal year 1999-2000, and for each fiscal year thereafter, commission shall annually publish a consumer guide to the institutions of higher education located in this state. The guide shall include, but not be limited to, the results obtained from the quality indicator system that address the concerns of students and their families."

**TOPIC: REPORT ON OUT-OF-STATE INSTRUCTION**

**PREPARED BY: TIM GRIEDER**

**I. SUMMARY**

The Commission holds statutory responsibility to approve instruction offered out-of-state beyond the seven contiguous states. By action of the Commission in 1986 the Executive Director may act for the Commission to approve or c requests from governing boards for approval of courses and programs to be offered by their institutions. This agend item includes additional instruction that the Executive Director has certified as meeting the criteria for out-of-st delivery. It is sponsored by the Trustees of The State Colleges and the Board of Regents of the University of Colorado.

**II. BACKGROUND**

Prior to 1983, instruction out-of-state was offered at will by Colorado institutions, primarily through the Extende Studies Program, but an Attorney General opinion of July 3, 1980, concluded that there was no authorizing legislati and out-of-state programs were discontinued. In 1983, the General Assembly enacted legislation that a non-state-funded out-of-state instruction but also required governing board approval. When the instruction is beyond the contiguous states, Commission approval is required as well.

At its meeting of May 2, 1986, the Commission delegated authority to the Executive Director to determine w out-of-state instruction beyond the contiguous states complies with statutory requirements. In June 1986, th Commission received the first notification of out-of-state instruction certified by the Executive Director. Addit approved out-of-state instruction is reported to the Commission as it is received and reviewed.

**III. ACTION**

The Executive Director has approved the following out-of-state instruction.

To be delivered by Adams State College:

ED 489/589, *Mayans of the Yucatan: History and Myth for Classroom Teachers* delivered June 2-16, 2000, in Mexico.

ED 589, *Mundo Maya: The Land Where Stones Speak* delivered June 2-24, 2000, in Mexico.

To be delivered by the University of Colorado Health Sciences Center:

*Fifth Annual National Urology Review*  
sponsored by the School of Medicine to be delivered December 11-12, 1999, in Illinois.

**APPENDIX A**

**STATUTORY AUTHORITY**

The Commission is given responsibility for approval of out-of-state instruction beyond the contiguous states in 23-5-116.

**TOPIC: CONCEPT PAPERS**

**PREPARED BY: WILLIAM G. KUEPPER**

## **I. SUMMARY**

This agenda item presents the concept papers submitted to the Commission during the past month, including:

*B.A. in Astronomy at the University of Colorado at Boulder*

This report includes a summary of the issues identified by CCHE staff and a copy of the concept paper. No action required of the Commission at this time, but if the Commission wishes to have additional issues addressed or qu answered in the full proposal, these can be added to those in the staff report.

## **II. Background**

Approval by the Commission of a new degree program proposal is a two-stage process. The governing boards sub concept paper to the Commission that provides an opportunity for the Commission to identify potential state issues prior to developing the full proposal. In contrast, the full proposal includes details about curriculum, financing, cap construction needs, and other implementation details.

### **Stage 1: Concept Paper**

Before an institution develops a full proposal, the governing board or its staff shall submit a short concept paper to CCHE that outlines the proposed program goals, the basic design of the program, the market it plans to serve, and reasons why the program is appropriate for the institution and its role and mission. CCHE policy does not requir governing board to approve the concept paper.

After the Commission staff reviews the concept paper, a staff member meets with representatives of the governing board to discuss issues and concerns related to the proposed degree. The staff presents the issues that need to be addressed in the full degree program proposal. A concept paper may be submitted by the governing board at any time and may included on any Commission agenda.

### **Stage 2: Full Degree Proposal**

The full proposal for a new degree program reaches the Commission only after undergoing review by, and receiv approval from, the governing board. The request for new degree approval must include:

- A complete degree program proposal as defined by the governing board policy.
- The institution's responses to the peer review comments.
- Tables of enrollment projections, physical capacity estimates, and projected expense and revenue estimates.
- An analysis by the governing board of the potential quality, capacity, and cost-effectiveness of the proposed degree program.
- The governing board's response to the issues identified in the Commission's review of the concept paper.

In addition, graduate degree programs require review by an external consultant. The Commission staff selects and contacts the external consultant; the governing board staff reviews the list of potential reviewer

Once the governing board approves a proposal, the Commission staff prepares an analysis of the proposal, an institutional profile giving additional context for the institution's capacity and market demand, and a recommendati based on the statutory criteria.

The Commission only considers degree proposals at its January or June meetings. This provides the Commission opportunity to examine the proposals in the context of statewide need.

**TOPIC: CONCEPT PAPER: BACHELOR OF ARTS (B.A.) IN ASTRONOMY  
THE UNIVERSITY OF COLORADO AT BOULDER**

**PREPARED BY: WILLIAM G. KUEPPER**

**I. BACKGROUND**

The University of Colorado at Boulder has submitted a concept paper for a Bachelor of Arts (B.A.) degree in Astronomy. The Department of Astronomy and Astrophysical Sciences, in which this program would be housed, offers both M.S. and Ph.D. degrees in Astrophysical, Planetary, and Atmospheric Sciences.

The concept paper notes that the proposed degree program would have two tracks. One track would train students to do graduate work in astronomy/astrophysics and employment in aerospace, computer software, instrumentation, and technical areas. The second would prepare students for work in science education, science journalism, and space policy.

According to the concept paper, recent hires in the department provide the faculty resources necessary to mount the proposed degree. The university has a wide range of other resources in Astronomy, both for instruction and research, that would be available to students in the proposed undergraduate degree program.

At the present time, there is no undergraduate degree in Astronomy offered in the state. A number of institutions offer undergraduate coursework in Astronomy, but none currently have the resources necessary to mount an entire degree.

**II. ISSUES TO BE ADDRESSED IN PROPOSAL**

After discussions between Commission staff and representatives of the governing board and the institution, it is the intention of CU-Boulder to prepare and submit a full proposal for a B.A. in Astronomy. It was agreed at that meeting that institutional mission and program duplication are not issues that need to be addressed further than already done in the concept paper. It was further agreed that the following will be included in the full proposal:

1. A clear curricular distinction between the two tracks proposed for the new degree program--general astronomy/astrophysics/physics.
2. The advantages for students and graduates that the new program, in particular the track in astrophysics, would have over the existing astrophysics specialization (i.e., Plan 2) in Physics, including how holding an undergraduate degree in astronomy enhances the employability of graduates over those graduating with the existing specialization in physics.
3. The potential impact of the proposed degree program on the enrollment in the existing program specialization and plans for that specialization.
4. The precise nature of the training to be provided in science education and the expectations of employability in the field of program graduates.
5. How the program will emphasize student-centered learning, the use of technology, and student responsibility learning.

**III. INFORMING THE GOVERNING BOARD**

Following this meeting, the Commission shall inform the governing board about the above matters, and any additional issue that the Commission may raise about the proposed Bachelor of Arts (B.A.) in Astronomy at the University of Colorado at Boulder.