



# Exam MLC: Models for Life Contingencies

## Learning Objectives and Readings Changes

Updated August 19, 2011

Changes are coming to the learning objectives and required readings for Exam MLC effective with the Spring 2012 exam administration.

### What has changed since the April 8, 2011 update?

The list of readings has been updated to include two options.

#### Option A

Dickson, C.M.D., Hardy, M.R., and Waters, H.R. (2009), *Actuarial Mathematics for Life Contingent Risks*, Cambridge: Cambridge University Press. Chapters 1-11 (excluding Sections 9.5-9.7 and 10.5). [Note: April 8 update included Section 10.5.]

*Supplementary Notes for Actuarial Mathematics for Life Contingent Risk*

*Errata for Actuarial Mathematics for Life Contingent Risks.*

The *Supplementary Notes* and the *Errata* can be [downloaded at no cost from the Cambridge University Press website](#).

#### Option B

Cunningham, R.J., Herzog, T.N., and London, R.L. (2011) *Models for Quantifying Risks*, Fourth Edition. Winsted, CT: ACTEX Publications, Inc. Chapters 3, 5-15 (excluding Sections 11.6, 14.5, 15.5), 16 (Section 16.1 only).

The learning objectives were revised. The revisions are summarized below. [Revised draft of the Spring 2012 MLC learning objectives](#)

- Variable annuities were removed. Subsequent to the release of the draft learning objectives a handbook for the Fundamentals of Actuarial Practice (FAP) modules was drafted. The handbook includes detailed coverage of variable annuities. The FAP modules will cover variable annuities.
- The hyperbolic (Balducci) assumption for fractional ages was removed. The assumption is rarely used in current actuarial practice.
- The list of insurances in Learning Objective 7 was removed. The list implied that a specific set of insurances (and no others) would be tested. The intent of the learning

objective is not to learn about certain insurances but instead to understand how concepts could be extended.

#### **Is there anything else? (August 19 Update)**

- At the present time the SOA has no plans to change the current format of the examination (paper/pencil multiple-choice) in 2012 or 2013.
- An [MLC draft notation and terminology study note](#) has been created. A copy of the study note will be available in advance of the examination. A copy will not be provided with the examination.
- The Illustrative Life Table at 6% will continue to be used on the examination. A copy of the table will be available in advance of the examination and a copy will be provided with the examination.
- A sample question set will be released. The first subset will be an edited version of the current set of Exam MLC sample questions. Additional subsets will include questions on topics that are not covered by questions in the current sample question set. The first subset will be released in August 2011. Additional questions will be added prior to November 2011.

#### **Will there be any more changes? (August 19 Update)**

The final learning objectives and readings list for the Spring 2012 MLC examination will be released in early November 2011 as part of the normal cycle for posting learning objectives and readings in advance of a Spring 2012 examination. Any changes that may occur will be included at that time. At this time no major changes are anticipated.

#### **What is different compared to the current learning objectives? (April 8 Update)**

- Increased emphasis on multi-state transition models
- Increased emphasis on discrete cash flow models
- Inclusion of interest sensitive product cash flow models
- Removal of Poisson processes

#### **Why change the learning objectives for life contingencies? (April 8 Update)**

- The last substantial change to the syllabus for the life contingencies exam was in 1986. This revision will reflect changes to theory and practice that have occurred since that time.
- The current syllabus is heavily influenced by traditional life insurance products and historic approaches.
- Universal life insurance and variable and equity-indexed annuities are now significant products in the marketplace.
- Modeling has changed. Spreadsheets and modeling software with a spreadsheet interface are commonly used, along with the analysis of discrete time cash flows.
- Multi-state models have been developed and are used in practice.
- Investment risks are sometimes more critical than mortality process risks.
- Risk measurement approaches have changed.
- International practice and learning objectives include some methods not in the current SOA syllabus.

**Why Spring 2012? (April 8 Update)**

Currently, the life contingencies topic is taught as a two-semester fall/spring course sequence at most universities. As such the end of the spring semester is an ideal time to offer the first exam administration with the revised syllabus.

**Where did these learning objectives come from? (April 8 Update)**

The revised learning objectives result from the work of the Life Contingencies Topic Working Group and the Learning Objectives Drafting Group. The working groups were comprised of SOA members representing the various practice areas and several disciplines.

**Could additional textbooks be included as alternate required readings? (April 8 Update)**

Additional alternative textbooks were considered in the process of selecting the readings. It is possible that in the future alternative reading options will be added.

**Questions?**

Contact [education@soa.org](mailto:education@soa.org)

