Schedule A : ERM Educational Standards

DETAILED LEARNING OBJECTIVES

The list of detailed learning objectives is given below. On completion of the global ERM designation the candidate will have met IAA requirements and will be able to perform the activity described.

Each of the learning objectives has been rated. Bloom's taxonomy was used to determine the expected level of learning of each topic. This also provides a guideline as to the level at which examination of candidates for each topic should be aimed.

Bloom's Taxonomy

The following describes in some detail Bloom's taxonomy.

To assist students in understanding the level of learning expected from them, the following six level guide is provided, starting from the lowest or easiest level and increasing in complexity.

Students are not required to demonstrate the same level of learning for each Aim or of each Objective within each Aim. Consequently, an indication of the required level of learning is required to ensure that students focus on the key areas and that examiners, examinations, assessment and any other support materials are appropriately focused. Note that the level of learning is expected to be signalled by the use of the appropriate key word as discussed below.

1. Knowledge: Student recalls or recognizes information, ideas, and principles in the approximate form in which they were previously learned. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Examples of learning objectives at this level: know common terms, know specific facts, know methods and procedures, know basic concepts.

2. Comprehension: Student translates, comprehends, or interprets information based on prior learning. Comprehension is the ability to grasp the meaning of material. This may be shown by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material, and represent the basic or core understanding. Examples of learning objectives at this level: understand facts and principles, interpret material, interpret numerical data, and translate verbal material to mathematical formulae.

3. Application: Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question. Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension. Examples of learning objectives at this level: apply concepts and principles to new situations, apply laws and theories to practical situations, solve mathematical problems, demonstrate the correct usage of a method or procedure.

4. Analysis: Student breaks down material into components, understands organisational structures and the relationships of parts. Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of parts, analysis of the relationship between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material, and the ability to look behind the facts and assumptions. Examples of learning objectives at this level: recognise unstated and

implicit assumptions, recognise logical fallacies in reasoning, distinguish between facts and inferences, identify the relevancy of data.

5. Synthesis: Student originates, integrates, and combines ideas. Synthesis is the ability to put parts together to form a new whole. This may involve the production of a unique communication, a plan, or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviours, with major emphasis on the formulation of new patterns or structure.
Examples of learning objectives at this level: 'propose a plan for …', integrate learning from different areas into a plan for solving a problem, 'formulate a new scheme for …'.

6. Evaluation: Student appraises, assesses, or critiques on a basis of specific standards and criteria. Evaluation is to do with the ability to judge the value of material for a given purpose. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all the other categories, plus conscious value judgments based on clearly defined criteria.
Key to assessing the learning outcomes for each Aim or Objective is that the desired levels of learning are clearly specified to all stakeholders involved - in particular students course preparers, tutors and examiners. The application of the hierarchy of learning objectives will require some judgement on the part of students and all those involved with the course.
The levels of learning can be illustrated by the verbs that can be used in the examination of student knowledge. For some topics, it is natural to test the student's knowledge of concepts. Verbs such as "define" or "list" require a student to simply reflect knowledge. However, the verb "analyse" requires a much higher level of understanding along with the ability to use the knowledge. The verbs that illustrate the level of learning are listed in the next table together with the numeric rating in Bloom's taxonomy.
The individual learning objectives are listed below together with the numeric rating. In some cases, there is a range (at most a difference of 1) for the target, rather than a single rating. This allows some tailoring to reflect local needs and emphasis. However, at least half of these cases must be taught and examined at the higher level in the range.
In order to illustrate this difference for each learning objective, a "*" symbol is added to the key verb to indicate that verbs in the next higher numerical level could also have been used. The actual numerical rating is shown for each learning objective. The verb in the learning objective corresponds to the lower rating where such a difference exists.

Within each section, it is expected that at least half of those learning objectives marked with a "*" symbol be met at the next higher rating. The appropriate verbs for the indicated as well as for next higher rating are indicated in the following table. Those persons who are establishing educational programs or examinations should also consult the learning objectives along with this table to ensure the overall minimum required level is met within each section.

LEARNING OBJECTIVES WITH EXPECTED LEVEL OF LEARNING

Each person awarded the designation must have been examined on a substantial majority of the learning objectives to the level indicated. Over a rolling three year period, all learning objectives should be included in examinations to the level indicated.

Section 1: Enterprise Risk Management Concept and Framework

(a) Describe* the concept of ERM, the drivers behind it and the resulting value to organizations. **(2-3)**

(b) Explain* the principal terms in ERM. **(2-3)**

(c) Analyse* an appropriate framework for an organization's enterprise risk management and an acceptable governance structure. **(4-5)**

(d) Evaluate* an organization's risk management culture including: risk consciousness, accountabilities, discipline, collaboration, incentive compensation, and communication. **(4-5)**

(e) Demonstrate* an understanding of governance issues including market conduct, audit, and legal risk. **(3-4)**

(f) Demonstrate* an understanding of risk frameworks in regulatory and other environments (e.g. Basel II, Solvency II, Sarbanes-Oxley, COSO, Aus/NZ 4360, ISO 31000) and their underlying principles. **(3-4)**

(g) Demonstrate* an understanding of the perspectives of regulators, rating agencies, stock analysts, and company stakeholders and how they evaluate the risks and the risk management of an organization. **(3-4)**

(h) Propose how an ERM process can create value for an organization through better assessment of the organization's risk profile, possible reduction in economic capital, improvement in rating, etc. **(5)**

(i) Relate* the risk and return trade-offs that result from changes in the organization's risk profile. **(3-4)**

Section 2: ERM Process (Structure of the ERM Function and Best Practices)

(j) Demonstrate* how to articulate an organization's risk appetite, quantified risk tolerances, risk philosophy and risk objectives. **(3-4)**

(k) Demonstrate* how to articulate a desired risk profile and appropriate risk filters. **(3-4)**

(l) Assess the overall corporate risk exposure arising from financial and non-financial risks. **(6)**

(m) Compare the relevance of risk measurement and management to various stakeholders including customers, regulators, government, company directors, professional advisors, shareholders and the general public. **(4)**

(n) Demonstrate* an understanding of contagion and how it affects different stakeholders. **(3-4)**

(o) Evaluate* the elements of a successful risk management function and a structure for an organization's risk management function. **(4-5)**

(p) Determine* how financial and other risks and opportunities influence the selection of strategy and how ERM can be appropriately embedded in an entity's strategic planning. **(4-5)**

(q) Demonstrate the application of a risk control process such as the Risk Management Control Cycle or other similar approach. **(3)**

(r) Propose* ERM solutions or strategies to address real (case study) and hypothetical situations. **(5-6)**

Section 3: Risk Categories and Identification

(s) Explain what is meant by risk and uncertainty. **(2)**

(t) Describe different definitions and concepts of risk. **(2)**

(u) Discuss* risk taxonomy. **(2-3)**

(v) Investigate and interpret* financial and non-financial risks faced by an entity, including but not limited to: currency risk, credit risk, spread risk, liquidity risk, interest rate risk, equity risk, hazard/insurance risk, pricing risk, reserving risk, other product risk, operational risk, project risk and strategic risk. **(3-4)**

Section 4: Risk Modelling and Aggregation of Risks

(w) Demonstrate* how each of the financial and non-financial risks faced by an entity can be amenable to quantitative analysis. **(3-4)**

(x) Demonstrate* enterprise-wide risk aggregation techniques incorporating the use of correlation. **(3-4)**

(y) Evaluate and select* appropriate copulas as part of the process of modelling multivariate risks. **(4-5)**

(z) Demonstrate* the use of scenario analysis and stress testing in the risk measurement process. **(3-4)**

(aa) Examine the use of extreme value theory to help model risks. **(4)**

(bb) Demonstrate* the importance of the tails of distributions, tail correlations, and low frequency / high severity events. **(3-4)**

(cc) Demonstrate* an understanding of model and parameter risk. **(3-4)**

(dd) Evaluate and select* appropriate models to handle diverse risks, including the stochastic approach. **(4-5)**

Section 5: Risk Measures

(ee) Apply* risk metrics to quantify major types of risk exposure and tolerances in the context of an integrated risk management process. **(3-4)**

(ff) Demonstrate* the properties of risk measures (e.g. VaR and TVaR) and their limitations. **(3-4)**

(gg) Analyse* quantitative financial and insurance data using modern statistical methods (including asset prices, credit spreads and defaults, interest rates, incidents, causes and losses). **(4-5)**

(hh) Evaluate* best practices in risk measurement, modelling, and management of various financial and non-financial risks faced by an entity. **(4-5)**

(ii) Analyse* credit risk as related to fixed income securities. **(4-5)**

Section 6: Risk Management Tools and Techniques

(jj) Relate* the rationale for managing risk and the selection of the appropriate degree of hedging of risk. **(3-4)**

(kk) Demonstrate* risk optimization and the impact on an organization's value of an ERM strategy. **(3-4)**

(ll) Demonstrate means for transferring risk to a third party, and estimate the costs and benefits of doing so. **(3)**

(mm) Demonstrate* means for reducing risk without transferring it. **(3-4)**

(nn) Demonstrate* how derivatives, synthetic securities, and financial contracting may be used to reduce risk or to assign it to the party most able to bear it. **(3-4)**

(oo) Determine* an appropriate choice of hedging strategy for a given situation (e.g., reinsurance, derivatives, financial contracting), which balances benefits with inherent costs, including exposure to credit risk, basis risk, moral hazard, and other risks. **(4-5)**

(pp) Demonstrate* an understanding of the practicalities of market risk hedging, including dynamic hedging. **(3-4)**

(qq) Define credit risk as related to derivatives; define credit risk as related to reinsurance ceded; define counter-party risk and demonstrate* the use of comprehensive due diligence and aggregate counter-party exposure limits. **(3-4)**

(rr) Apply* funding and portfolio management strategies to control equity and interest rate risk, including key rate risks. Explain the concepts of immunization including modern refinements and practical limitations. **(3-4)**

(ss) Analyse* application of ALM principles to the establishment of investment policy and strategy including asset allocation. **(4-5)**

(tt) Identify and interpret* other key risks (e.g. operational, strategic, legal, and insurance risks) and uncertainty and demonstrate possible mitigation strategies. **(3-4)**

Section 7: Economic Capital

(uu) Interpret* the concept of economic measures of value (e.g., EVA, embedded value, economic capital) and demonstrate their uses in corporate decision-making processes. **(3-4)**

(vv) Apply* risk measures and demonstrate* how to use them in economic capital assessment. **(3-4)**

(ww) Propose* techniques of allocating/appropriating the "cost" of risk/capital/hedge strategy to business units in order to gauge performance (e.g. returns on marginal capital). **(5-6)**

(xx) Develop* an economic capital model for a representative financial firm. **(5-6)**

* This verb corresponds to the lower of the two Bloom's ratings indicated (refer to