# CAS Capability Model Legend

The CAS capability model outlines the key content knowledge areas, professional skills, and traits of those in the property and casualty actuarial profession.

The following pages provide additional detail about each capability and how it is operationalized at three levels of expertise:

**Level 1** Individuals **understand** the content knowledge of the property and casualty actuarial profession, have the skills to apply this content knowledge in practice to derive solutions and communicate results, and have the traits to work effectively both independently and as part of a team.

**Level 2** Individuals have a **strong command** of the content knowledge of the property and casualty actuarial profession, the skills to apply this content knowledge and integrate concepts across areas to address complex problems and communicate findings to a variety of stakeholders, and the traits to collaborate with others to drive decision-making.

**Level 3** Individuals have an **advanced** level of specialized content knowledge of the property and casualty actuarial profession, the skills to design novel solutions to solve complex problems, and the traits to effectively lead multi-disciplinary teams within and across organizations.

**Core Content Areas**

The following provides additional details about each of the core content (knowledge) areas, including level-specific examples of the content knowledge expected within the profession. Specifically, a professional at each level would be expected to **demonstrate an understanding of:**

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| **Property & Casualty Insurance Industry** – Knowledge of industry operations (e.g., contracts, underwriting, and the regulatory environment). |
| **C:PC:L1:** Industry operations, including how the actuarial function influences processes and regulations applicable to one's practice. |
| **C:PC:L2:** The property and casualty industry environment, including laws and regulations applicable to practice, as well as any imminent changes that may impact practice. |
| **C:PC:L3:** Emerging trends in the industry relevant to one's practice area and role and demonstrate thought leadership in predicting the impact of these emerging trends. |
| **Mathematics / Modeling** – Knowledge of mathematical branches (e.g., probability, statistics, predictive analytics/modeling, financial mathematics) and mathematical models applicable to the actuarial profession. |
| **C:MM:L1:** How foundational mathematics are part of the actuarial process and how to build, operate, and validate a mathematical model. |
| **C:MM:L2:** Model design and selection to replicate a real-world process, evaluate model inputs, and interpret results. |
| **C:MM:L3:** Design and selection of a dynamic, real time or production model. |
| **Finance –** Knowledge of company financials, financial reporting, accounting frameworks, and investments. |
| **C:FI:L1:** Common financial reports, accounting principles, and investment instruments. |
| **C:FI:L2:** The connections between various financial reports. |
| **C:FI:L3:** How internal and external changes impact finance principles, instruments, and reports. |
| **Functional Expertise** – Knowledge of the functional areas in the actuarial space, such as ratemaking, reserving, and reinsurance practices. |
| **C:FE:L1:** The primary functions in the actuarial profession, including ratemaking, reserving, and reinsurance. |
| **C:FE:L2:** Proficiency in one functional area; basic understanding of interactions across all other areas. |
| **C:FE:L3:** Expertise in at least one functional area by developing new findings, issuing new research, or finding new applications of the area. |
| **Risk Evaluation and Management** – Knowledge of risks in the insurance industry and understanding of how to determine the likelihood/plan for future events (e.g., capital models, catastrophe models, and Enterprise Risk Management). |
| **C:RM:L1:** The sources of risk in accordance with prescribed risk management procedures. |
| **C:RM:L2:** The skills to assess the risk tolerance of stakeholders, monitor key risk drivers, evaluate potential stresses and potential emerging risks, and develop contingency plans. |
| **C:RM:L3:** The skills to oversee a risk management framework, facilitate setting of risk tolerance, and monitor internal and external environment for potential changes to the risk treatment approach. |
| **Actuarial Standards of Practice** – Knowledge of provided guidance on the techniques, applications, procedures, and methods that reflect appropriate actuarial practices. |
| **C:AS:L1:** How to comply with the professional standards for actuaries in the property and casualty insurance industry. |
| **C:AS:L2:** How to coach others on applicable actuarial standards and provide guidance. |
| **C:AS:L3:** How to contribute to the actuarial standards and guidance. |

**Skills**

The following provides additional details about each of the skills expected within the profession. Specifically, a professional at each level would be **expected to demonstrate**:

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| **Critical Thinking & Problem Solving** – Skills to think through a problem by evaluating each component part and applying prior knowledge to find one or more solutions. |
| **S:CT:L1:** Reasons through a problem or situation by identifying the important parts and collecting information to inform decision making. |
| **S:CT:L2:** Evaluates problems by identifying stakeholder requirements, proposing criteria for decision making, evaluating options against proposed criteria, presenting a solution, and managing an iterative process based on feedback. |
| **S:CT:L3:** Designs innovative solutions to solve complex problems and deliver results. |
| **Data Analysis** – Skills to gather, analyze, and draw practical conclusions from data as well as communicate data findings to others. |
| **S:DA:L1:** Reviews and evaluates data (e.g., data cleaning, confirm integrity), manipulates data through aggregation and exploration, and documents findings. |
| **S:DA:L2:** Uses advanced data visualization and statistical tools, programming, and machine learning tools to anticipate and address competing explanations, validate results, and provide insights. |
| **S:DA:L3:** Works with complex data, across data sources, sets data governance standards, and provides business critical insights. |
| **Business and Technical Communication** – Ability to share information about professional topics with individuals inside and outside of one's own organization to drive business outcomes. |
| **S:BT:L1:** Communicates technical information to a variety of audiences by selecting an appropriate communication method and composing a clear and well-structured presentation of information. |
| **S:BT:L2:** Adapts one's communication style to the audience, presents complex data clearly, appropriately summarizes key messages and their impact, and evaluates the effectiveness of communication. |
| **S:BT:L3:** Provides leadership by driving conversations, addressing conflict constructively, and building consensus among and influencing stakeholders. |
| **Professionalism –** Ability to act in a professional manner and make ethical decisions aligned with professional actuarial standards. |
| **S:PR:L1:** Performs work in accordance with professional code of conduct. |
| **S:PR:L2:** Highlights potential conflict of interest or unethical/improper action and seeks resolution. |
| **S:PR:L3:** Acts as a role model by promoting high standard and seeks to advance the profession's reputation for ethical conduct. |
| **Business Acumen** – Ability to apply knowledge of insurance products and business problems to make decisions. |
| **S:BA:L1:** Applies knowledge of the insurance products within which one's employer operates. |
| **S:BA:L2:** Influences business stakeholders through use of advanced knowledge of insurance products and the market. |
| **S:BA:L3:** Understands and explains the business implications of decisions and strives to improve organization performance. |
| **Leveraging Technology** – Ability to use technology to improve processes and outcomes. |
| **S:LT:L1:** Uses standardized technology (e.g., SQL, spreadsheets, BI tools, data in csv/txt format) to solve rote tasks within the actuary's area of practice. |
| **S:LT:L2:** Uses latest technology (e.g., cloud-based platforms, Python/R, version control, containers, Continuous Integration /Continuous Development, machine learning techniques for tabular/structured datasets, data formats such as JSON and Parquet) to solve standard business problems within the actuary's area of practice. |
| **S:LT:L3:** Uses cutting-edge technology (e.g., deep learning libraries, computer vision systems, large language models or works with outputs therefrom, distributed compute [Spark], streaming or unstructured data and graphical databases) to transform actuarial processes and outcomes. |

**Traits**

The following provides additional details about each of the skills expected within the profession. Specifically, a professional at each level would be **expected to demonstrate**:

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| **Analytical –** Ability to apply theories by identifying connections or patterns in the context or business problem. |
| **T:AN:L1:** Applies statistical methods and actuarial methodologies in solving business problems. |
| **T:AN:L2:** Designs analytic steps to validate signals vs noises and provide justification for insights. |
| **T:AN:L3:** Asks questions to understand problems facing the business stakeholders and proposes an analytic framework. |
| **Intellectually Curious**– Desire to explore, discover, and understand, and a willingness to ask questions. |
| **T:IC:L1:** Asks questions to understand context around the task given. |
| **T:IC:L2:** Engages in self-directed and collaborative learning to understand actuarial designs, methodologies, and theories. |
| **T:IC:L3**: Synthesizes insights and expertise across disciplines to expand the boundaries of actuarial work. |
| **Contextual** – Skills to draw from prior experience to understand what variables/factors/dynamics are relevant in any given situation. |
| **T:CO:L1:** Considers the big picture of one's work in the broader organizational and technical context. |
| **T:CO:L2:** Relates current business problems to and expands/builds upon past experiences or experiences of peers. |
| **T:CO:L3:** Applies knowledge of the complex dynamics at the corporate or industry level and how various business functions interact while cultivating collaboration to understand what to do in any given situation. |
| **Creative** – Ability to think above and beyond formal training and known environment to address business problems. |
| **T:CR:L1:** Applies formal training in a variety of business problems across different products/lines of businesses. |
| **T:CR:L2:** Designs effective solutions through in-depth understanding of business problems. |
| **T:CR:L3:** Predicts future problems, creates novel solutions, and demonstrates expertise in scenario planning and management. |
| **Intelligent/Adept**– Ability to acquire and apply relevant knowledge and skills. |
| **T:IA:L1:** Seeks to learn independently as well as from peers/supervisors. |
| **T:IA:L2:** Looks for opportunities to apply new knowledge in business context and to teach others. |
| **T:IA:L3:** Assesses capabilities of various business partners to leverage their strengths and influence their decision making to drive outcomes. |
| **Principled** – Ability to act in accordance with ethics guided by the Actuarial Standards of Practice (ASOP). |
| **T:PR:L1:** Understands and navigates professional situations where questions of ethics are present. |
| **T:PR:L2:** Engages in and helps guide decision-making processes where questions of ethics are present. |
| **T:PR:L3:** Models ethical behavior and is known as an ethical leader in one's organization and the profession. |