UCL Université catholique de Louvain

LMAT2410

2014-2015

Equations aux dérivées partielles 2 : Equation de la chaleur, mouvement brownien et aspects numériques

5.0 crédits	30.0 h + 15.0 h	2q

Enseignants:	Van Schaftingen Jean ; Ponce Augusto ;
Langue d'enseignement:	Français
Lieu du cours	Louvain-la-Neuve
Ressources en ligne:	<!--{cke_protected}{C}%3C!%2D%2D%0A%20%2F*%20Font%20Definitions%20*%2F%0A%40font-face %0A%09%7Bfont-family%3A%22Cambria%20Math%22%3B%0A %09panose-1%3A2%204%205%203%205%204%206%203%202%204%3B%0A%09mso-font-charset%3A1%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-format%3Aother%3B%0A%09mso-font-pitch%3Avariable%3B%0A %09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%40font-face%0A%09%7Bfont-family%3A %22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-font-charset%3A0%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-pitch%3Aauto%3B%0A%09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%20%2F*%20Style%20Definitions%20*%2F%0Ap.MsoNormal%2C %20li.MsoNormal%2C%20div.MsoNormal%0A%09%7Bmso-style-unhide%3Ano%3B%0A%09mso-style-qformat%3Ayes%3B %0A%09mso-style-parent%3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A %09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09font-family%3A%22Times%20New %20Roman%22%3B%0A%09mso-fareast-font-family%3A%22Times%20New%20Roman%22%3B%0A%09mso-bidi-font-family %3A%22Times%20New%20Roman%22%3B%0A%09mso-ansi-language%3AEN-US%3B%0A%09mso-fareast-language %3AEN-US%3B%7D%0Ap.Corps%2C%20li.Corps%2C%20div.Corps%0A%09%7Bmso-style-name%3ACorps%3B%0A %09mso-style-unhide%3Ano%3B%0A%09mso-style-parent%3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%0A%09font-family%3AHelvetica%3B%0A%09mso-fareast-font-family%3A %22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B%0A%09color%3Ablack%3B%0A%09mso-ansi-language%3AFR %3B%7D%0A.MsoChpDefault%0A%09%7Bmso-style-type%3Aexport-only%3B%0A%09mso-default-props%3Ayes%3B%0A %09font-size%3A10.0pt%3B%0A%09mso-ansi-font-size%3A10.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%7D%0A %40page%20WordSection1%0A%09%7Bsize%3A612.0pt%20792.0pt%3B%0A%09margin%3A70.85pt%2070.85pt%2070.85pt %2070.85pt%3B%0A%09mso-header-margin%3A36.0pt%3B%0A%09mso-footer-margin%3A36.0pt%3B%0A%09mso-paper-source%3A0%3B%7D%0Adiv.WordSection1%0A%09%7Bpage%3AWordSection1%3B%7D%0A%2D%2D%3E-- > Site iCampus > http://icampus.uclouvain.be/claroline/course/index.php?cid=MAT2410+

Préalables :	& mp;amp;amp;amp;amp;amp;lt;!--{cke_protected}{C}%3C!%2D%2D%0A%20%2F*%20Font%20Definitions%20*%2F%0A %40font-face%0A%09%7Bfont-family%3A%22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E %E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-font-charset%3A0%3B%0A%09mso-generic-font-family %3Aroman%3B%0A%09mso-font-pitch%3Aauto%3B%0A%09mso-font-signature%3A0%200%200%200%200%200%3B%7D %0A%20%2F*%20Style%20Definitions%20*%2F%0Ap.MsoNormal%2C%20li.MsoNormal%2C%20div.MsoNormal%0A %09%7Bmso-style-unhide%3Ano%3B%0A%09mso-style-qformat%3Ayes%3B%0A%09mso-style-parent%3A%22%22%3B%0A %09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09font-family%3A%22Times%20New%20Roman%22%3B%0A%09mso-fareast-font-family%3A %22Times%20New%20Roman%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B%0A %09mso-ansi-language%3AEN-US%3B%0A%09mso-fareast-language%3AEN-US%3B%7D%0Ap.Corps%2C%20li.Corps%2C %20div.Corps%0A%09%7Bmso-style-name%3ACorps%3B%0A%09mso-style-unhide%3Ano%3B%0A%09mso-style-parent %3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%0A%09font-family%3AHelvetica%3B %0A%09mso-fareast-font-family%3A%22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E %E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B %0A%09color%3Ablack%3B%0A%09mso-ansi-language%3AFR%3B%7D%0A.MsoChpDefault%0A%09%7Bmso-style-type %3Aexport-only%3B%0A%09mso-default-props%3Ayes%3B%0A%09font-size%3A10.0pt%3B%0A%09mso-ansi-font-size %3A10.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%7D%0A%40page%20WordSection1%0A%09%7Bsize%3A612.0pt %20792.0pt%3B%0A%09margin%3A70.85pt%2070.85pt%2070.85pt%2070.85pt%3B%0A%09mso-header-margin%3A36.0pt %3B%0A%09mso-footer-margin%3A36.0pt%3B%0A%09mso-paper-source%3A0%3B%7D%0Adiv.WordSection1%0A %09%7Bpage%3AWordSection1%3B%7D%0A%2D%2D%3E--& mp;amp;amp;amp;amp;amp;gt; Les étudiants auront suivi un cours d'introduction à l'analyse fonctionnelle ou à l'analyse mathématique des équations aux dérivées partielles: LMAT1321 - Analyse fonctionnelle et équations aux dérivées partielles, ou LINMA1315 - Compléments d'analyse, ou LMAT2130 - Equations aux dérivées partielles 1 : équations de Poisson et de Laplace
Thèmes abordés :	& mp;amp;amp;amp;amp;amp;amp;amp;amp;lt;!--{cke_protected}{C}%3C!%2D%2D%0A%20%2F*%20Font%20Definitions%20* %2F%0A%40font-face%0A%09%7Bfont-family%3A%22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E %E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-font-charset%3A0%3B%0A%09mso-generic-font-family %3Aroman%3B%0A%09mso-font-pitch%3Aauto%3B%0A%09mso-font-signature%3A0%200%200%200%200%200%3B%7D %0A%20%2F*%20Style%20Definitions%20*%2F%0Ap.MsoNormal%2C%20li.MsoNormal%2C%20div.MsoNormal%0A %09%7Bmso-style-unhide%3Ano%3B%0A%09mso-style-qformat%3Ayes%3B%0A%09mso-style-parent%3A%22%22%3B%0A %09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09font-family%3A%22Times%20New%20Roman%22%3B%0A%09mso-fareast-font-family%3A %22Times%20New%20Roman%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B%0A %09mso-ansi-language%3AEN-US%3B%0A%09mso-fareast-language%3AEN-US%3B%7D%0Ap.Corps%2C%20li.Corps%2C %20div.Corps%0A%09%7Bmso-style-name%3ACorps%3B%0A%09mso-style-unhide%3Ano%3B%0A%09mso-style-parent %3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%0A%09font-family%3AHelvetica%3B %0A%09mso-fareast-font-family%3A%22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E %E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B %0A%09color%3Ablack%3B%0A%09mso-ansi-language%3AFR%3B%7D%0A.MsoChpDefault%0A%09%7Bmso-style-type %3Aexport-only%3B%0A%09mso-default-props%3Ayes%3B%0A%09font-size%3A10.0pt%3B%0A%09mso-ansi-font-size %3A10.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%7D%0A%40page%20WordSection1%0A%09%7Bsize%3A612.0pt %20792.0pt%3B%0A%09margin%3A70.85pt%2070.85pt%2070.85pt%2070.85pt%3B%0A%09mso-header-margin%3A36.0pt %3B%0A%09mso-footer-margin%3A36.0pt%3B%0A%09mso-paper-source%3A0%3B%7D%0Adiv.WordSection1%0A %09%7Bpage%3AWordSection1%3B%7D%0A%2D%2D%3E--& mp;amp;amp;amp;amp;amp;amp;amp;amp;gt; & mp;amp;amp;amp;amp;amp;amp;amp;lt;!--{cke_protected}{C}%3C!%2D%2D%0A%20%2F*%20Font%20Definitions%20*%2F %0A%40font-face%0A%09%7Bfont-family%3A%22Cambria%20Math%22%3B%0A %09panose-1%3A2%204%205%203%205%204%206%203%202%204%3B%0A%09mso-font-charset%3A1%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-format%3Aother%3B%0A%09mso-font-pitch%3Avariable%3B%0A %09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%40font-face%0A%09%7Bfont-family%3A %22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-font-charset%3A0%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-pitch%3Aauto%3B%0A%09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%20%2F*%20Style%20Definitions%20*%2F%0Ap.MsoNormal%2C %20li.MsoNormal%2C%20div.MsoNormal%0A%09%7Bmso-style-unhide%3Ano%3B%0A%09mso-style-qformat%3Ayes%3B %0A%09mso-style-parent%3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A %09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09font-family%3A%22Times%20New %20Roman%22%3B%0A%09mso-fareast-font-family%3A%22Times%20New%20Roman%22%3B%0A%09mso-ansi-language %3AEN-US%3B%0A%09mso-fareast-language%3AEN-US%3B%7D%0Ap.Corps%2C%20li.Corps%2C%20div.Corps%0A %09%7Bmso-style-name%3ACorps%3B%0A%09mso-style-unhide%3Ano%3B%0A%09mso-style-parent%3A%22%22%3B %0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A %09font-size%3A12.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%0A%09font-family%3AHelvetica%3B%0A%09mso-fareast-font-family%3A%22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro %20W3%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B%0A%09color%3Ablack%3B%0A %09mso-ansi-language%3AFR%3B%7D%0A.MsoChpDefault%0A%09%7Bmso-style-type%3Aexport-only%3B%0A%09mso-default-props%3Ayes%3B%0A%09font-size%3A10.0pt%3B%0A%09mso-ansi-font-size%3A10.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%7D%0A%40page%20WordSection1%0A%09%7Bsize%3A612.0pt%20792.0pt%3B%0A%09margin %3A70.85pt%2070.85pt%2070.85pt%2070.85pt%3B%0A%09mso-header-margin%3A36.0pt%3B%0A%09mso-footer-margin %3A36.0pt%3B%0A%09mso-paper-source%3A0%3B%7D%0Adiv.WordSection1%0A%09%7Bpage%3AWordSection1%3B %7D%0A%2D%2D%3E--& mp;amp;amp;amp;amp;amp;amp;amp;gt; Étude d'équations aux dérivées partielles à l'aide de méthodes d'analyse réelle, d'analyse harmonique, d'analyse fonctionnelle et de théorie de la mesure afin de répondre à des questions d'existence, d'unicité et de comportement qualitatif de solutions.

Acquis d'apprentissage	Contribution du cours aux acquis d'apprentissage du programme de master en mathématique. A la fin de cette activité, l'étudiant aura progressé dans : (a) La capacité d'acquérir de façon autonome et exploiter de nouvelles connaissances et compétences tout au long de sa vie professionnelle (b) La capacité d'abstraction et de raisonnement et l'esprit critique. Il sera capable de : i. Dégager les aspects unificateurs de situations et expériences différentes. ii. Raisonner dans le cadre de la méthode axiomatique. iii. Construire et rédiger une preuve de façon autonome, claire et rigoureuse. (c) L'aptitude à la communication scientifique. Il sera capable de : i. Rédiger un texte mathématique selon les conventions de la discipline. ii. Structurer un exposé oral en l'adaptant au niveau d'expertise des interlocuteurs. (d) La capacité de dégager, grâce à l'approche abstraite et expérimentale propre aux sciences exactes, les aspects unificateurs de situations et expériences différentes en mathématique ou dans des domaines proches. (e) La capacité d'abstraction et l'esprit critique, dans le but de devenir capable de i. Raisonner dans le cadre de la méthode axiomatique. ii. Reconnaître les arguments clef et la structure d'une démonstration. iii. Construire et rédiger une démonstration de façon autonome. iv. Apprécier la rigueur d'un raisonnement mathématique ou logique et en déceler les failles éventuelles. v. Faire la distinction entre l'intuition de la validité d'un résultat et les différents niveaux de compréhension rigoureuse de ce même résultat. (f) La clarté, la précision et la rigueur dans les activités de communication dans le but de devenir capable de i. Rédiger un texte mathématique selon les conventions de la discipline. (g) L'aptitude à l'apprentissage autonome. Il sera capable de : i. Rechercher des sources dans la littérature mathématique et juger de leur pertinence. ii. Situer correctement un texte mathématique avancé par rapport aux connaissances acquises. Acquis d'apprentissage spécifiques au cours. A la fin de cette activité, l'étudiant sera capable de : --- Présenter des contextes de modélisation faisant apparaître les problèmes étudies dans le cours. '- Répondre mathématiquement à des questions concernant les propriétés de solutions d'équations aux dérivées partielles (existence, unicité, propriétés qualitatives). '- Appliquer et présenter des techniques d'analyse réelle, d'analyse harmonique, d'analyse fonctionnelle et de théorie de la mesure à l'étude d'équations aux dérivées partielles. '- Interpréter dans différents contextes de modélisation les résultats du cours. *La contribution de cette UE au développement et à la maîtrise des compétences et acquis du (des) programme(s) est accessible à la fin de cette fiche, dans la partie « Programmes/formations proposant cette unité d'enseignement (UE) ».*

Modes d'évaluation des acquis des étudiants :	& mp;amp;amp;amp;amp;lt;!--{cke_protected}{C}%3C!%2D%2D%0A%20%2F*%20Font%20Definitions%20*%2F%0A%40font-face%0A%09%7Bfont-family%3A%22Cambria%20Math%22%3B%0A %09panose-1%3A2%204%205%203%205%204%206%203%202%204%3B%0A%09mso-font-charset%3A1%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-format%3Aother%3B%0A%09mso-font-pitch%3Avariable%3B%0A %09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%40font-face%0A%09%7Bfont-family%3A %22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-font-charset%3A0%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-pitch%3Aauto%3B%0A%09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%20%2F*%20Style%20Definitions%20*%2F%0Ap.MsoNormal%2C %20li.MsoNormal%2C%20div.MsoNormal%0A%09%7Bmso-style-unhide%3Ano%3B%0A%09mso-style-qformat%3Ayes%3B %0A%09mso-style-parent%3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A %09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09font-family%3A%22Times%20New %20Roman%22%3B%0A%09mso-fareast-font-family%3A%22Times%20New%20Roman%22%3B%0A%09mso-bidi-font-family %3A%22Times%20New%20Roman%22%3B%0A%09mso-ansi-language%3AEN-US%3B%0A%09mso-fareast-language %3AEN-US%3B%7D%0Ap.Corps%2C%20li.Corps%2C%20div.Corps%0A%09%7Bmso-style-name%3ACorps%3B%0A %09mso-style-unhide%3Ano%3B%0A%09mso-style-parent%3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%0A%09font-family%3AHelvetica%3B%0A%09mso-fareast-font-family%3A %22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B%0A%09color%3Ablack%3B%0A%09mso-ansi-language%3AFR %3B%7D%0A.MsoChpDefault%0A%09%7Bmso-style-type%3Aexport-only%3B%0A%09mso-default-props%3Ayes%3B%0A %09font-size%3A10.0pt%3B%0A%09mso-ansi-font-size%3A10.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%7D%0A %40page%20WordSection1%0A%09%7Bsize%3A612.0pt%20792.0pt%3B%0A%09margin%3A70.85pt%2070.85pt%2070.85pt %2070.85pt%3B%0A%09mso-header-margin%3A36.0pt%3B%0A%09mso-footer-margin%3A36.0pt%3B%0A%09mso-paper-source%3A0%3B%7D%0Adiv.WordSection1%0A%09%7Bpage%3AWordSection1%3B%7D%0A%2D%2D%3E--& mp;amp;amp;amp;amp;gt; & mp;amp;amp;amp;amp;lt;!--{cke_protected}{C}%3C!%2D%2D%0A%20%2F*%20Font%20Definitions%20*%2F%0A%40font-face %0A%09%7Bfont-family%3A%22Cambria%20Math%22%3B%0A %09panose-1%3A2%204%205%203%205%204%206%203%202%204%3B%0A%09mso-font-charset%3A1%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-format%3Aother%3B%0A%09mso-font-pitch%3Avariable%3B%0A %09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%40font-face%0A%09%7Bfont-family%3A %22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro%20W3%22%3B%0A%09mso-font-charset%3A0%3B%0A%09mso-generic-font-family%3Aroman%3B%0A%09mso-font-pitch%3Aauto%3B%0A%09mso-font-signature%3A0%200%200%200%200%200%3B%7D%0A%20%2F*%20Style%20Definitions%20*%2F%0Ap.MsoNormal%2C %20li.MsoNormal%2C%20div.MsoNormal%0A%09%7Bmso-style-unhide%3Ano%3B%0A%09mso-style-qformat%3Ayes%3B %0A%09mso-style-parent%3A%22%22%3B%0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A %09mso-pagination%3Awidow-orphan%3B%0A%09font-size%3A12.0pt%3B%0A%09font-family%3A%22Times%20New %20Roman%22%3B%0A%09mso-fareast-font-family%3A%22Times%20New%20Roman%22%3B%0A%09mso-ansi-language %3AEN-US%3B%0A%09mso-fareast-language%3AEN-US%3B%7D%0Ap.Corps%2C%20li.Corps%2C%20div.Corps%0A %09%7Bmso-style-name%3ACorps%3B%0A%09mso-style-unhide%3Ano%3B%0A%09mso-style-parent%3A%22%22%3B %0A%09margin%3A0cm%3B%0A%09margin-bottom%3A.0001pt%3B%0A%09mso-pagination%3Awidow-orphan%3B%0A %09font-size%3A12.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%0A%09font-family%3AHelvetica%3B%0A%09mso-fareast-font-family%3A%22%E3%83%92%E3%83%A9%E3%82%AE%E3%83%8E%E8%A7%92%E3%82%B4%20Pro %20W3%22%3B%0A%09mso-bidi-font-family%3A%22Times%20New%20Roman%22%3B%0A%09color%3Ablack%3B%0A %09mso-ansi-language%3AFR%3B%7D%0A.MsoChpDefault%0A%09%7Bmso-style-type%3Aexport-only%3B%0A%09mso-default-props%3Ayes%3B%0A%09font-size%3A10.0pt%3B%0A%09mso-ansi-font-size%3A10.0pt%3B%0A%09mso-bidi-font-size%3A10.0pt%3B%7D%0A%40page%20WordSection1%0A%09%7Bsize%3A612.0pt%20792.0pt%3B%0A%09margin %3A70.85pt%2070.85pt%2070.85pt%2070.85pt%3B%0A%09mso-header-margin%3A36.0pt%3B%0A%09mso-footer-margin %3A36.0pt%3B%0A%09mso-paper-source%3A0%3B%7D%0Adiv.WordSection1%0A%09%7Bpage%3AWordSection1%3B %7D%0A%2D%2D%3E--& mp;amp;amp;amp;gt; L'évaluation se basera sur les productions personnelles écrites et orales des étudiants en cours de quadrimestre et sur un examen final.

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